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Design With The Times

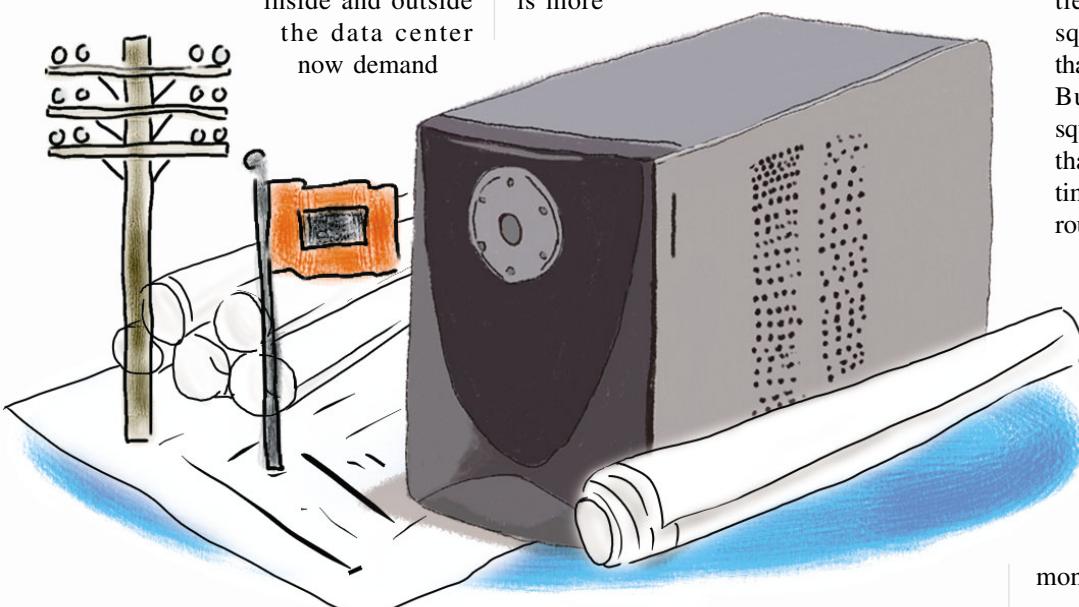
A Look At The Changing Rules Of Data Center Design

by Christian Perry

DATA CENTER DESIGN once followed a logical set of footprints that most companies could use to build the best space for their needs. But those days are long gone, as the strong potential for volatile conditions both inside and outside the data center now demand

efficient, forward-thinking design that can handle the most extreme of circumstances.

"In recent years, the events we thought would never happen have happened," says Brett Williams, Protiviti's associate director of technology risk. "We live in a world where weather is more



severe; the stress on the utility grid is greater than ever; geo-political threats are ever-changing; and increasingly valuable data is at risk from internal and external threats. Considerations for rapidly changing technologies and improved disaster recovery requirements should be at the fore of data center design."

The lessons of 9/11 and Hurricane Katrina taught data center designers that basic redundancies and communications backup isn't always enough to ensure that access to data won't be interrupted when disaster strikes. But the past several years have also shown the need for other changes, particularly as equipment now consumes more power than ever and generates enough heat to make the sun blush.

Inner Thoughts

According to Tom Dunn, a principal at Transitional Data Services—where he's also the head of the company's data center facilities practice—only 50 or 60 watts per square foot of power density was more than adequate only two or three years ago. But today, 100 or even 200 watts per square foot is increasingly common, given that data centers can deploy four to five times the amount of processing power in roughly the same amount of floor space.

"Increased power densities naturally create the need for increased cooling capacity as well," Dunn says. "This is reflected in the fact that typical lead times for CRAC [computer room air conditioning] units, UPSes, backup generators, and switch gear are either at or more than double the lead times that [typically occurred] 12 to 18 months ago."

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Data Center Design & Construction

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■ **AirMagnet** released AirMagnet Planner, which provides RF planning and WLAN design tools. ■ **AIS** announced its LDS line of 1U rackmount KVM console LCDs. ■ **CipherTrust** released a new version of its CipherTrust Edge network perimeter security appliance. ■ **Emerson Network Power** released its Liebert XDH row cooler designed to cool high-heat-density equipment. ■ **McData** released its Virtual Tape Library disk-to-disk-to-tape product. ■ **NetworkStreaming** released the SA300 enterprise-grade appliance, which is part of the company's series of appliance-based remote support products. ■ **PowerFile** released A3 (Active Archive Appliance), which is designed to replace tape storage. ■ **Secure Computing** released a new identity and access management appliance, the SafeWord SecureWire 50.

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[Data storage is available in three flavors:
hot sites, warm sites, and cool sites.]

200 events that can cause a disaster," says Abruzzo. "Rather than planning for disaster events, we plan for the result of an event as it relates to time. For example, if a disaster event causes inaccessibility to your facility or inoperability of your technology for a specific or an approximate timeframe, that's considered a disaster."

NAAT (North American Access Technologies) has identified eight types of disaster scenarios: natural, human, environmental, localized, area-wide, short-term, long-term, and permanent. "We specialize in the consulting support and planning to optimize our clients' disaster recovery and, more importantly, disaster avoidance. By properly preparing for most foreseeable incidents, we believe that most DR effects

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Tips From Experts In The DR Field

by Julie Sartain

THE AMERICAN HERITAGE Dictionary defines a disaster as "an occurrence causing widespread destruction and distress; a catastrophe" such as a flood, fire, or act of Mother Nature. TAMP Computer Systems, a DR (disaster recovery) planning/consulting, software, and client service firm defines it as

"Any event that causes inaccessibility or inoperability to your technology, business functions, or facility." For the purpose of this article, that definition is right on target.

How The Industry Defines Disasters

Tom Abruzzo, president and CEO of TAMP Computer Systems, says if you ask 10 people to define a disaster, you'll get 10 different answers. For example, most people think of a disaster as an event such as a flood, tornado, terrorist attack, etc. "Our industry research shows that there are, actually, over

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Upcoming IT Events

- SEPTEMBER -

HP Technology Forum 2006

September 17-21
Houston, Texas
www.hptechnologyforum.com

COMMON Fall 2006 Conference

September 17-21
Miami Beach, Fla.
www.common.org/conferences/2006/fall/index.html

Interop

September 18-22
New York, N.Y.
www.interop.com/newyork
Visit Processor at Booth 568

IT Service Management Forum Conference & Expo

September 18-22
Salt Lake City, Utah
www.jupiterevents.com/itsmf/fall06

Business Rules Symposium Series

September 19-20
Washington, D.C.
www.brainstorm-group.com

Enterprise Architecture Conference Series

September 19-20
Washington, D.C.
www.brainstorm-group.com

Government Technology Conference East 2006

September 25-28
Albany, N.Y.
www.govtech.net/gtc/index.php/GTCEast2006

Intel Developer Forum

September 26-28
San Francisco, Calif.
www.intel.com/idf

- OCTOBER -

IT Expo

October 3-4
Anchorage, Alaska
www.sourdough.net

Gartner Symposium/ITxpo

October 8-13
Orlando, Fla.
www.gartner.com

Internet Telephony Conference & Expo West

October 10-13
San Diego, Calif.
www.tmcnet.com/voip/conference

ASCDI Fall

October 18-21
Toronto, Canada
www.ascdi.com

Chicago ITC 2006

October 18-19
Chicago, Ill.
www.goitec.com

InfoSecurity

October 23-25
New York, N.Y.
www.infosecurityevent.com

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MarketPlace NEWS



HP Board Decides Chair's Fate; Govt. Joins Investigation

AMID INVESTIGATIONS INTO leaks of private information regarding actions of HP's Board Of Directors, the HP board has asked for and received the resignation of Chairman Patricia Dunn. Dunn has faced sharp criticism for her order to investigate board members regarding the information leak. As a result of Dunn's order, HP hired an investigative company to find out who was leaking information. However, the investigators used questionable tactics such as pretending to be someone else in order to gather private information. In addition to the board of directors' own investigations into the issue, the Department of Justice announced its own inquiries, and the House Of Representatives' Energy and Commerce Committee has asked HP to supply it with documents regarding the situation. Dunn contends she did not know about the tactics being used by the investigators. HP President and CEO Mark Hurd will replace Dunn after the board's January scheduled meeting; Dunn will remain a board director.

Storage Hardware Market Grows

THE NAS MARKET grew 30% during the past year, according to a recent report by Gartner, primarily because of the large number of NAS products being introduced. EMC and NetApp were the leading manufacturers in the space. The NAS segment's 30% growth compares to a 4.3% growth in the overall storage hardware market. EMC took first place in the overall market, with a 4.3% growth over last year; IBM and HP tied for second place in terms of revenue and had 4% and 1.5% year-over-year growth, respectively. NetApp experienced the best growth, according to Gartner, with revenues up more than 22% during the past year.

Intel To Cut 10% Of Workforce

THE WORLD'S LARGEST microchip maker, Intel, has announced plans to reduce its workforce by about 10%, cutting 10,500 jobs. The cuts are part of a plan to increase the company's efficiency and agility as its rival Advanced Micro Devices has steadily gained market share. Intel already laid off 2,000 workers when it sold two business units in the past couple months, and it cut 1,000 management jobs in July. An additional 2,000 will be eliminated through attrition. Intel says it expects to save \$1 billion this year, \$2 billion next year, and \$3 billion in 2008.

Vista Pricing Set, Gets Broader Release

MICROSOFT ANNOUNCED that pricing for its new Windows operating system, Vista, will be as follows: Vista Home Basic: \$199, Vista Home Premium: \$239, Vista Business: \$299, and Vista Ultimate: \$399. For those upgrading from Windows XP to Vista, the costs are reduced. Upgrade prices are: Vista Home Basic: \$99, Vista Home Premium: \$159, Vista Business: \$199, and Vista Ultimate: \$259. Microsoft also says it will increase the number of people testing Vista to more than 5 million, now including "technology enthusiasts" to test consumer features in addition to the developers and other business users currently testing it.

Phishing Sites Increase

ACCORDING TO the Anti-Phishing Working Group, July saw a record number of phishing sites. Phishing sites are Web sites that appear legitimate but are used to fraudulently obtain personal information. The number of sites increased 18% over May for a total of 14,191 sites in July, which mimicked a record 154 brands. The Anti-Phishing Working Group says that almost 30% of all phishing sites are hosted in the United States, followed by 13% hosted in South Korea and 12% in China.

Microsoft Loses Product Activation Appeal

THE REQUEST FOR a new trial made by Microsoft and Autodesk in the patent infringement lawsuit brought against them by Z4 Technologies has been denied. U.S. District Judge Leonard Davis turned down the request and ordered Microsoft and Autodesk to pay Z4 Technologies a total of \$158 million. The lawsuit was filed by Z4 owner David Colvin two years ago over two technologies, one to prevent unauthorized use of software and the other to combat piracy. A jury found in Z4's favor on April 19.

Packard Bell Reportedly Sold

NEC IS SET TO sell its Packard Bell division to Lap Shun Hui, founder of eMachines, for an undisclosed sum late this month. NEC, which says it is selling Packard Bell so it can focus its efforts on business PCs, has owned the division since 1995 and has sold NEC Packard Bell consumer PCs in Europe and Asia. It's the third-largest consumer computer maker in Europe, although it's been steadily losing market share as its competitors drop prices. NEC Packard Bell stopped selling PCs in the United States in 1999.

Feds Seek Extension Of Microsoft Antitrust Deal

MICROSOFT AND the U.S. Department of Justice have jointly submitted paperwork in their quest to receive an extension of two years in the antitrust case against Microsoft dating back to November 2002. The decision now lies in the hands of U.S. District Court Judge Colleen Kollar-Kotelly. The extension would push the deadline back to Nov. 9, 2009, from the original Nov. 12, 2007, deadline and would be applicable for provisions with the Microsoft Communications Protocol Program. If the judge approves this extension, the DOJ could ask for another three-year extension if

it still finds problems with Microsoft's documentation.

Worldwide Chip Sales Up

ACCORDING TO the Semiconductor Industry Association, July saw global sales of microchips rise 11.5% from a year earlier, totaling \$20.1 billion. Sales in the Americas saw the greatest increase with an almost 18% rise over the previous year. Sales in the Asia-Pacific region rose 13.4%, while in Europe sales increased by 4%. All types of microchips, including Intel computer processors, Texas Instruments cell phone processors, and Samsung Electronics memory chips, were included in the sales figures.

Credit Card Companies Form United Front

THE FIVE LEADING credit card companies have united to form the Payment Card International Security Standards Council with the goal of developing and maintaining security standards for credit and debit payments. The five companies—American Express, Discover, JCB, MasterCard, and Visa—will oversee the PCI Data Security Standard. The credit card companies say that, despite their competition with one other, it's critical for the entire industry to have a single data security standard.

Gateway Names New CEO

EFFECTIVE SEPT. 18, Gateway will have a new CEO. Ed Coleman will replace Rick Snyder, who has filled in as interim CEO at Gateway since Wayne Inouye resigned in February. Coleman is currently senior vice president and president of Arrow Electronics' Enterprise Computing Solutions. Coleman has also served as CEO at corporate reseller CompuCom Systems. While Arrow searches for a permanent replacement for Coleman, Catherine Morris will act as president for the company.

FCC Speeds Bidding In Wireless Sale

IN AN EFFORT TO speed up the sale of 1,122 advanced wireless services licenses nationwide, the U.S. Federal Communications Commission halved the time period of each bidding round to 30 minutes instead of an hour and added two additional bidding rounds per day. The company with the most current bids after 54 rounds is T-Mobile USA, with offers totaling \$4.2 billion and the highest bids on 121 licenses. Verizon Wireless holds second place in the bidding amounts with highest bids on four licenses and offers of \$2.8 billion.

WATCH THE STOCKS

This information provides a quick glimpse of current and historical stock prices and trends for 16 major companies in the technology market.

Company	Symbol	Year Ago	Sept. 1 \$	Sept. 11 \$	% change from previous week
Avaya	AV	\$10.03	\$10.46	\$10.95	▲ 4.68%
BEA Systems	BEAS	\$9.10	\$13.94	\$14.34	▲ 2.87%
Computer Associates	CA	\$27.49	\$23.53	\$23.33	▼ 0.85%
Cisco Systems	CSCO	\$18.40	\$22.27	\$21.96	▼ 1.39%
Dell	DELL	\$35.12	\$22.55	\$21.19	▼ 6.03%
Electronic Data Systems	EDS	\$22.50	\$24.03	\$24.12	▲ 0.37%
Google	GOOG	\$294.87	\$378.60	\$384.09	▲ 1.45%
HP	HPQ	\$27.46	\$36.53	\$36.36	▼ 0.47%
IBM	IBM	\$80.98	\$81.41	\$80.93	▼ 0.59%
Intel	INTC	\$25.66	\$19.88	\$19.40	▼ 2.41%
McAfee	MFE	\$32.21	\$22.85	\$22.68	▼ 0.74%
Microsoft	MSFT	\$26.85	\$25.84	\$25.91	▲ 0.27%
Oracle	ORCL	\$13.41	\$15.50	\$16.29	▲ 5.1%
Red Hat Software	RHAT	\$15.38	\$24.19	\$22.15	▼ 8.43%
Sun Microsystems	SUNW	\$3.93	\$4.99	\$4.99	Uchg'd.
Symantec	SYMC	\$21.90	\$18.74	\$19.06	▲ 1.71%

NOTE: This information is meant for reference only and should not be used as a basis for buy/sell decisions.

Virtualization Software

Virtualization Arrives In The Data Center

by Sixto Ortiz Jr.

• • •

ONE OF THE HOTTEST topics in computing today is virtualization. With virtualization, data center administrators can get rid of actual physical servers and deploy those as virtual machines running in more powerful, high-end servers.

Virtualization also has implications for data/application security and disaster recovery. Virtualized environments, for example, can be deployed to help organizations quickly implement disaster recovery steps. In this roundup, we take a look at a few virtualization applications that may just be the answer for your consolidation, disaster recovery, or application security issues.

The Virtualization Marketplace

According to survey results collected by the Yankee Group with its 2006 Global Server Virtualization Survey, virtualization technology is firmly entrenching itself as a key technology in corporate data centers.

62% of the 700 IT managers and C-level executives who responded to the survey said their companies already deployed or were deploying server virtualization technology at the time of the survey. Only 15% of responders said their firms had no definite migration timetable at the time of the survey. Most responders who did not already have virtualization deployed or were in the process of doing so had firm plans in place to deploy within 18 months at the most. Clearly, virtualization is a technology whose time has come.

Buying Tips

- **Understand your reasons.** Virtualization, in spite of the plethora of tools out there, can get fairly complex. Be sure to have a clear idea of what you want to accomplish.
- **Multiplatform is key.** Unless you are a strictly one-platform shop, make sure whatever virtualization application you buy is compatible with multiple software environments.
- **Freebies are good.** Companies such as VMware, Microsoft, and Altiris offer some of their virtualization apps free of charge. It won't hurt to experiment before you spend budget dollars on an application.
- **Pay attention to the hardware.** Server consolidation means purchasing a big, powerful server to host all those virtual machines. Specify something with enough firepower to provide plenty of scalability.
- **Management and administration are still important.** Remember, you might not be managing as many physical servers, but you might end up managing plenty of virtual machines. Applications with intuitive, easy-to-use management interfaces will pay dividends.

VMware ACE

The VMware ACE (Assured Computing Environment) for the Enterprise is an application designed to provide higher security for unmanaged PCs—such as those owned by contractors, partners, etc.—whose users require access to company resources.

The solution is quite simple: With VMware ACE, administrators deploy a virtual machine containing a PC image that is managed and controlled per business security

SNAPSHOT

VMware ACE (Assured Computing Environment)

VMware ACE on one PC: \$99
VMware ACE Manager: \$795
VMware ACE Starter Kit (ACE Manager plus four licenses): \$995

A way to use virtualization for securing unmanaged endpoints

www.Processor.com/VM-ACE

policies. The virtual machines contain the OS and all required applications and data external third parties need to perform their work and are also bound by all internal security policies and technologies. In a nutshell, the software takes an external, unmanaged endpoint PC and turns it into a fully compliant and secured internally managed endpoint.

The software also features a VRM (Virtual Rights Management) module for managing and administering all security policies and access rights controlling virtual machines deployed by VMware ACE. Other features include virtual machine expiration controls, rules-based network access for virtual machines, and access control to external devices such as DVD/CD writers, USB keys, and printers.

SWsoft Virtuozzo

Virtualization can create its own set of problems for data center professionals: Instead of hardware management headaches, the proliferation of virtual machines running a plethora of OSes and applications can itself create a management and administration nightmare. SWsoft's Virtuozzo is designed to solve this problem by enabling the creation

SNAPSHOT

SWsoft Virtuozzo

Control OS sprawl by efficiently sharing resources

www.Processor.com/SWsoft

of "virtual environments," or VEs, that run on a single server and server OS.

In this sense, Virtuozzo delivers OS virtualization via partitioning: The VEs run in a single physical server and make use of a single, common OS. The software features maximum and minimum controls on system resources such as CPU, memory, network access, and disk space, so administrators can create customized QoS for virtual environments. Virtuozzo uses a technology called Kernel Abstraction Layer that oversees the interaction between VEs and the OS kernel and keeps VEs completely isolated from each other. This prevents a single, unruly VE from taking an entire physical server down.

The software also provides three management methods: a command line interface, a Virtuozzo Management Console GUI-management environment, and a Virtuozzo Control Center that allows management from any Web browser. The software is also designed to allow for the creation and use of more than 5,000 VEs in a single Intel x86 physical server.

Altiris 6 Software Virtualization Solution

One of the eternal struggles in Windows computing environments is the havoc wreaked by poorly coded applications that can bring the entire OS and applications environment to its knees. For example, installing new applications can cause DLL conflicts, causing unwanted downtime and management headaches. Altiris 6 SVS

SNAPSHOT

Altiris 6 Software Virtualization Solution

Banish "DLL hell" forever by efficiently bundling and isolating applications

www.Processor.com/Altiris8

(Software Virtualization Solution) solves this problem by bundling applications and the data they generate into VSPs (Virtual Software Packages) that isolate an application and its auxiliary files from the core Windows OS installation.

The software is primarily designed to prevent DLL conflicts and other issues from applications installed on client computers. To start the process, SVS is used to capture an application and "virtualize" it by bundling it into a VSP. Installation to a client computer running Windows XP Home, XP Pro, 2003 (server), or 2000 is as simple as copying the VSP to the client machine and activating it.

When the VSP is activated, it behaves like any other application natively installed to the system. The software uses a 150KB filter driver that intercepts application requests to the Windows OS, thus isolating the application from the natively installed Windows

More and more data centers are embracing virtualization and taking full advantage of the savings it can provide.

environment. Using SVS, VSPs can be activated or deactivated as needed, as well as easily reset, deleted, copied, or moved.

PlateSpin PowerConvert

To take advantage of virtualization, administrators sometimes need to move server environments from one platform to the other. For example, a migration from a traditional server to a blade server may be desired, or administrators may need to periodically back up a server to another server or virtual machine for disaster recovery purposes. PlateSpin's PowerConvert software makes the moving process simpler by automating it.

SNAPSHOT

PlateSpin PowerConvert

Automates migration into a three-step process

www.Processor.com/Platespin2

Think of PowerConvert as a digital "transporter" that seamlessly plucks server software and applications from one hardware environment and transports them—or streams them, as the company calls it—from one environment to another. The process takes place in three steps: discovery, configuration, and conversion.

With the discovery step, PowerConvert inventories the existing server environment. The configuration step allows administrators to take a "workload" from a source server and drag and drop it to the target server. The software manages the entire process by enabling the efficient removal of the software environment from the hardware and the configuration of the target server for its new software environment. Once the configuration is done, the conversion can either be done immediately or scheduled, and even while the source server is still running. The software takes care of all configuration details by automatically configuring the target server for its new role.

PlateSpin PowerConvert is compatible with VMware Infrastructure 3, ESX Server 2.1 and higher, and VMware Server virtual machines, as well as Microsoft Virtual Server 2005 and 2005 R2 virtual machines. OSes supported include Windows NT Server (SP4, SP6a), 2000 Server, Advanced Server, 2003 Server, 2003 Server R2, XP Pro (SP2); Redhat Linux (7.3, 8.0); Redhat Enterprise Linux (AS, 3.0, ES 3.0); and SuSE Linux Enterprise 9.

Microsoft Virtual Server 2005 R2

The fact that Microsoft is actively creating virtualization applications is testimony to the technology's adoption in IT. The company makes Virtual Server 2005 R2

SNAPSHOT

Microsoft Virtual Server 2005 R2

Free

Full-featured virtualization offering designed to work with Windows Server

www.Processor.com/Microsoft3

available as a free download for use with its Windows Server platform.

Virtual Server 2005 R2 works with up to 32 CPUs and features iSCSI and x64 support, PXE boot support, Virtual Server host

clustering, Hyper-Threading, CPU and memory resource allocation, a Web-based (Virtual Server Web) management console, virtual hard disks, and networking. The software also includes an Automated Deployment Services and Virtual Server Migration Toolkit, so conversion from physical to virtual machines or from virtual to virtual can be automated.

More Than Consolidation

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To see Processor Showcase advertisements for products in this category, look online at www.Processor.com and find the Virtualization ads under Software/Network & Systems Management.

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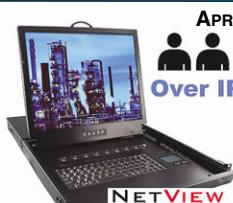
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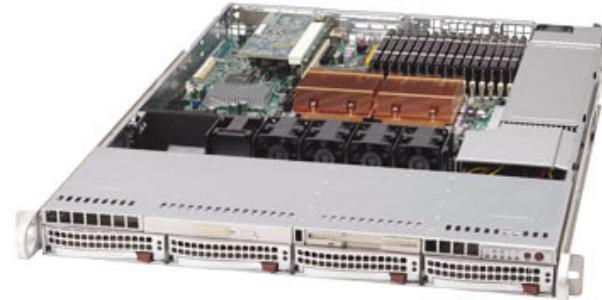
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Growing Pains?

How To Plan For Data Center Growth

by David Garrett

• • •

GROWTH IS AWKWARD. Whether it's teenagers or data centers, getting bigger often brings problems.

With data centers, the problems are frankly acute. Moving equipment is risky, and even the buildings that house data centers can become a hindrance if they have tough building codes, rules for permits, old power systems, or a host of other roadblocks that prove Murphy's Law.

Of course, there are no hard and fast rules for how much data center you'll need, but there are ways to cope with expansion.

Use It Or Lose It

If you need to squeeze more power from the space you have, get smaller and faster. Here's a quick list of things to consider:

- **Blade servers.** They're small, dense, and fast.
- **Server virtualization.** Collapse five, 10, or 15 servers onto one.
- **NAS and SANs.** High-end storage is complex but more compact than old-school file servers.
- **Water-cooled racks.** Often, they don't need raised floors and plenums.
- **Colocation.** Not enough space? House your servers in another data center.

Use What You've Got (& Use It Better)

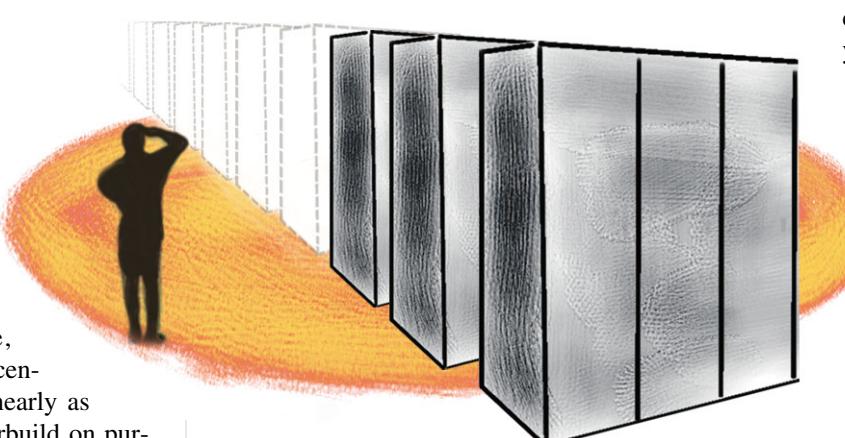
Sometimes it's best to optimize what you have to get the benefits of expansion without the hassle.

Or to put it another way, you may have more data center than you use, largely because many data center owners fear expansion nearly as much as downtime and overbuild on purpose. They also know they'll need to grow at some point but don't know exactly what such growth entails. As a result, they build the biggest data center they can afford, whether or not they need the full extent of its resources now.

What's the cost of too much capacity? An enormous waste in power, cooling, maintenance, building costs (such as rent and plumbing), and, of course, the opportunity cost of putting all that money to better use elsewhere.

But despite the problems, there is logic in overbuilding. It's less expensive to build an oversized data center than to build one that's too small and fails, bringing the business down with it. According to Steve Chen of RackLogic, many data centers, especially those in prime business locations, also find themselves in old buildings that are hard to renovate or new ones where it's just too expensive to knock down walls.

"You either get more room," says Chen, "or you shrink your machines." The first target on his list is obsolesced 4U servers (and even bigger towers) that can be



condensed into dense blade farms or simply fewer, faster machines. "You'd be amazed how many of those old, dual-P3 Intel machines with all the old hard drives" are still around, says Chen. In fact, it's such a problem that he's often tempted to "say we're in the no-tech business" and not the high-tech one.

For a few ways to optimize your current space, refer to the "Use It Or Lose It" sidebar.

When All Else Fails

If physical growth is your only choice—if, that is, you can't optimize any further—then growth becomes a matter of predictions: What will you need? What does it cost? And, above all, how do you plan for it?

Because the function of a data center derives from the needs of the business it supports, start by talking with department heads about the projects, systems, or software they have their eyes on. Is there a CRM (customer relationship management) job in the offing? What about a call center or an accounting upgrade? Often the data center manager is the last to know about key issues in his future.

Once you know what's ahead, you can plan the servers, racks, and cabling you'll need to accommodate it. And if you have the right tools, you can plan with some precision. Software from Rackwise (www.rackwise.com) lets you map out growth plans down to the rack, planning not just space but power

Go to Page 12

Expert Advice

Mike Hagan of Lee Technologies, which designs and runs data centers for marquee clients such as Office Depot, GEICO, and others, agrees with RackLogic's Steve Chen: Before you build more space, make sure you're getting the most from what you've got.

He also suggests you formally plan for risk. Most data center managers, he says, "don't understand necessarily what they're willing to accept from a risk perspective. What level of redundancy do you really need to build into this new data center or this new expansion? Do you want zero dependency, 1+1, 1+3?"

And, above all, be sure to plan for your new center's maintenance and not just its initial construction. "Many people forget about that in their planning sessions when they come up with a capital budget. The biggest failure is not addressing all the pitfalls along the way," Hagan says.

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Design With The Times

Continued from Page 1

Although the need for efficient cooling has long been a mainstay, inefficient design that leads to lapses in heat dissipation still appears today, but it's something that companies can avoid from the start. Dunn says

that while air cooling remains the primary approach to battling heat, the efficiency of hot and cold aisles will continue to evolve. For example, capitalizing on the chimney effect—in which hot air exits the rear of the equipment rack, is collected above the

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ceiling, and then routed back into air conditioning units—is proving to be an effective method for preventing hot air from moving back into a rack or into a cold aisle.

Equipment concerns in today's data center don't center only on heat generation; because new technologies can cause other havoc, leading designers to think twice about traditional architecture. "VoIP applications, security, multimedia broadcast, A/V, card access, wireless, building automation—these make the data center design process more layered and complex than ever," says Ken Farmer, CEO of Axis Technology.

Dunn notes that blade servers, virtualization, and SANs are also driving data center managers to modify their thinking, while Williams says that designers are increasingly focusing on wireless networks, particularly as uses for those networks increase.

Location Is Key

Naturally, it's no surprise that location is high on the minds of designers. While many large enterprises have the capital to build data centers far from the threat of hurricanes or other natural disasters, small and midsized enterprises often must build in the same area where headquarters are located. But smart design can overcome poor location.

"Excessive redundancy, front-end research, and extremely comprehensive continuity planning are a must to mitigate downtime due to natural disasters," Farmer says. "I believe that sound data center design is as much about planning and strategy as it is about the bricks, mortar, and cabling."

Future Design

Looking ahead, designers are poised to face the challenge of integrating technologies into data centers that previously existed mostly outside of those areas. For example, Farmer says that because of the increased trend toward telecommuting, telephony systems will appear more as a part of companies' broader IT architectures, as opposed to being housed in their own discrete centers. He adds that the advent of IP technologies—such as Cisco telephones—will allow designers to merge telephony centers and data centers into one central, powerful location.

According to Dunn, DC-powered servers and DC power distribution are gaining in popularity and could play a part in future design. "DC-based power distribution enables data center managers to achieve higher computing densities while dramatically lowering the operating cost and increasing the availability of the infrastructure," Dunn says. □

NCPI On The Rise

To fend off increasing competition, a business unit in your company decides to implement a new, Web-based application for customers, and major OEM providers can provide the necessary equipment to get the application up and running within days. That's the good news. The bad news is that your data center is in no shape to handle the hefty power and cooling requirements of that new equipment, and upgrades will take months.

"The common planning process in most companies does not comprehend the network-critical physical infrastructure [NCPI] layer," says Russell Senesac, manager for APC's InfraStruXure systems. "It's forgotten or viewed as 'will always be there' or similar to 'I turn the light switch on, and the light just comes on.' The result of not planning for the NCPI layer results in setbacks and project slips because it is not planned for or funded properly. In other words, NCPI has been an underfunded category."

As such, Senesac says APC is beginning to see companies building processes around designing, building, and operating data centers that comprehend the "front end" of business and plan and allocate funding for the appropriate NCPI to support the business initiatives. "Designs of data centers are now being done in methodology to 'right-size' the business requirement," Senesac says. "One size does not fit all in the data center."

Choosing A Disaster Recovery Provider

Continued from Page 1
can be mitigated so the organization can continue to function during a crisis."

Hot, Warm, Or Cool?

Currently, data storage is available in three flavors: hot sites, warm sites, and cool sites. Hot sites, which cost the big bucks, house your data in two separate locations: one is the "operational" location, and the other is the mirrored/redundant backup site, which is operated in real time so companies can literally switch over to the other site in seconds.

Warm sites are the same arrangement, but the data isn't real time; that is, it's not backed up as often. And cool sites include all the "offsite facilities" such as the service bureaus, managed recovery facilities, shared-resource facilities, and the mobile recovery units. Data is backed up onsite and delivered to an alternate location, backed up to a server across the Internet, or

transferred to a point-to-point location via the Internet or other communication lines.

Experts Offer Tips

We asked the pros to tell us how to choose a DR provider. First and foremost, they said to look for a DR provider that can offer you multiple choices for data recovery solutions to meet your needs. "The best companies offer various service levels including in-lab data recovery, remote data recovery, onsite service, and even do-it-yourself software. A provider that offers only 'one solution' will not be your best option," says Mike Hayes at Ontrack Data Recovery.

The people at SunGard Availability Services concur that companies should absolutely choose a provider with global reach and disparate, redundant, and hardened state-of-the-art facilities. SunGard's staff agrees with Hayes that a "complete suite of information availability solutions" is an essential consideration when selecting a provider. They also insist that a reputable DR provider lets you retain access and control of your data and supports a wide range of computing platforms from legacy and midrange to Intel-based systems.

"Make sure your DR provider has a proven track record in creating disaster recovery plans, aiding companies in testing them, and completing successful recoveries," adds Beth Harte, senior manager of marketing communications at SunGard. "Unlike the traditional outsourcing solutions offered by

other DR providers, SunGard lets its customers retain control of their systems and data when it's hosted at a SunGard facility."

Another important tip, offered by Ellis Ishaya, manager of the professional DR services team at EVault, is about data encryption. "The great thing about EVault's service is its high level of encryption," says Ishaya, "from your computer to the vault and back again. The data is encrypted once it leaves your computer, while in transit over the Internet, and when resting on EVault's vaults, and only the customer knows the encryption key."

In order to accomplish disaster recovery and business continuity planning, you must identify and document your recovery resources, says TAMP's Abruzzo. Define the scope of what you are trying to recover from a disaster, define your RTO (recovery time frame objective), choose and implement a recovery strategy that achieves your RTO, and then document your recovery plan, Abruzzo says.

Ontrack's Hayes adds that shoppers should choose a company that continually invests in R&D, so the technology is always state of the art. He also notes that the target DR provider must be available 24/7/365, without fail. "We are the only data recovery company in the industry to offer the full spectrum of recovery solutions," says Hayes. "We have an in-lab, a clean room, remote data recovery, onsite data recovery, and do-it-yourself data recovery software. There are hundreds

10 Tips At A Glance

1. Be sure your DR (disaster recovery) provider can offer you multiple choices for data recovery solutions to meet your needs.
2. Choose a provider with global reach and disparate, redundant, and hardened state-of-the-art facilities.
3. Choose a provider that allows you to retain access and control of your data.
4. Choose a provider that supports a wide range of computing platforms from legacy and midrange to Intel-based systems.
5. Make sure your provider has a proven track record in its field.
6. Be certain that your data is protected by a high level of encryption while in transit over the Internet and while resting on your provider's servers and that your company has the only encryption key.
7. Always identify and document your recovery resources.
8. Make sure your DR provider invests in research and development regularly.
9. Check to be sure the provider is available 24 hours a day, 365 days a year.
10. Make sure there are no hidden fees; know all the costs up front.

of data recovery companies out there; make sure you choose a winner!"

And last of all, Hayes says, be sure to read the fine print on your contract. Make sure you know all the costs up front, so it doesn't bankrupt your company just to get your company back up and running. □

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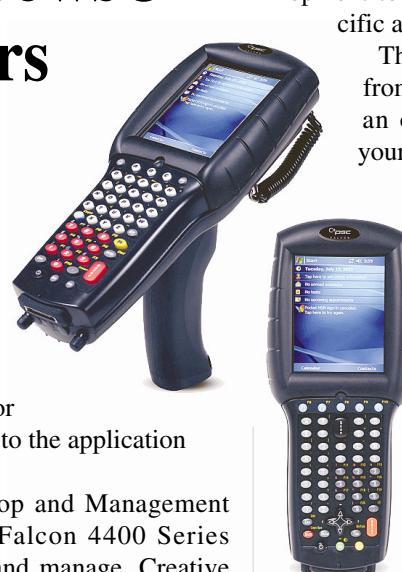
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Power Up, Cool Down

Planning For Power & Cooling Now Prevents Problems In The Future

by Elizabeth Millard

WITH THE INCREASING popularity of blade servers and the necessity for more equipment overall, many data center managers have found that power and cooling consistently rank as the two biggest issues in keeping a center operating smoothly.

After all, proper network configuration, multilayered security measures, and Web-based monitoring capability will all be rendered useless fairly quickly if servers overheat or the center goes dark.

The consequences for failing to properly plan can be dire; not only could a center sputter in terms of its current power needs, but it could find itself unable to implement future plans. (For information on planning for growth, see "Growing Pains?" on page

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9.) With that in mind, here are some tips and guidelines for making sure that power and cooling needs are met before there's a problem.

Be Aware Of Vendor Specs & Then Ignore Them

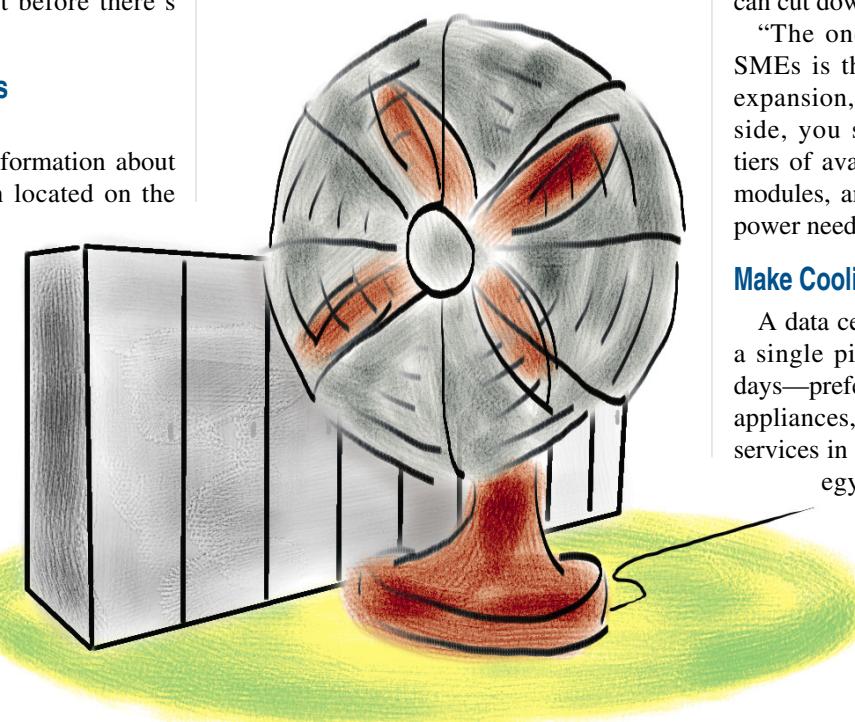
Most vendors include information about power requirements, often located on the back of the machine on a nameplate. But this data doesn't take into account a multivendor environment, the size of a data center, or even where the equipment is situated in a room.

"Don't rely on equipment nameplates if you want to determine your power and cooling loads," says Don Beaty, chair of the ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers) Technical Committee. "Your center will have different requirements than the specifications used by companies like Sun or IBM for testing."

Instead, Beaty suggests bringing in a professional to make sure there's no overprovisioning and then using software tools that can monitor for surges and temperature drops.

For environments that rely on single vendors, thermal reports might be available, such as those offered by Cisco and EMC. Managers of heterogeneous setups might want to check out some of ASHRAE's books, including "Thermal Guidelines for Data Processing Environments." Also, keep in mind that it's not just major pieces of equipment that affect overall power consumption.

"Different memory vendors may have different power envelopes," says Jeff Stilwell, senior director of systems engineering for Rackable Systems, which has developed a system that uses DC power, reducing the amount of power and cooling needed in a center. "It's useful to look at seemingly small factors when making technology decisions, like what kind of fan configuration is involved."



affects both power and cooling because a system has to work harder and draw more power to be effective.

Make Raised Flooring Work For You

The use of raised flooring has been a subject of minor debate in the data center world lately, with some positing that it's difficult to push enough air through the floor to cool effectively. But in general, many experts believe that raised flooring can be a boon, as long as it's planned and built properly.

"It is useful to look at seemingly small factors when making technology decisions."

-Rackable Systems' Jeff Stilwell

Issues to keep in mind with the flooring are how much cooling a center can expect, what type of wiring and piping will be used, whether the tiles are appropriate for the size of the space, and how easy it would be to add capacity. The flooring is also beneficial for power because cables can run inside of it.

cooling in the server center and get a grasp on overall electricity and air-conditioning standards in the building. Issues such as regular maintenance, filter changes, construction plans, and even when the heat gets turned on in chillier states can all have an effect on how a data center meets its power and cooling needs.

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Leave It To The Pros

Building Your Data Center While Keeping Your Sanity

by Chris Jackson

THE DIY TREND is fantastic for homeowners, car buffs, and scrapbooking aficionados, but for the SME requiring a new data center, it can be a never-ending source of frustration and delay. That's why experts recommend that experienced design and construction firms be used to develop and manage even the smallest data center projects.

The In-House Urge

IT departments pride themselves on troubleshooting, problem solving, and designing resilient infrastructures, so it's no surprise that many companies make the mistake of thinking they have the appropriate skill sets to design and manage the construction of their data centers. "It's easy to step outside of your domain of knowledge" when dealing with data center design, says Jim O'Gorman, IT manager of on-demand publisher iUniverse. "Sometimes knowing your limits is the best attribute you can bring to a project."

Many companies feel they have no choice but to do the design and project management in-house for budgetary reasons. In their eyes, a dollar spent on a



consultant is a dollar less on raised floors, HVAC, and rack systems. Unfortunately, penny-pinching on the design and planning can come back to haunt you.

Why Outsource?

Think of all the elements of even the smallest data center: electrical systems, HVAC, security systems, code requirements, and even regulations such as the Americans with Disabilities Act. The breadth of knowledge required to competently design and construct an efficient and productive data center is immense. Outsourcing this to companies that deal with these details on a daily, routine basis is the smart decision.

Utilizing the services of a company specializing in data center design and construction becomes even more important when the facility will be small in size. According to John Anderson of Computer Sites, "A small data center has its own unique requirements, and creating an efficient, manageable space is where a good design firm shines."

In addition, a design and construction firm can minimize conflicts between different

vendors and subcontractors. Any construction project is a lesson in compromises, and experienced design firms can help steer difficult projects so that they safely meet budget guidelines and deployment deadlines.

Services Offered

Not all design companies offer the same services. Some specialize in large data centers, others in clean rooms, and yet others in disaster recovery sites and colocation facilities. One of the few that offers services in all aspects of data center design and construction is Computer Sites out of Denver, Colo. "We don't limit ourselves to customers with a specific square footage requirement," says Computer Sites' Anderson. According to Anderson, companies should look for a partner with experience in a broad range of areas.

Facility design. A sound design company will know how to maximize the effective use of your floor plan, regardless of its square footage.

HVAC. Underprovisioning your HVAC system can have a dramatic effect on equipment life cycles as well as your utility charges.

Fire prevention/suppression. Choosing the appropriate technology for your requirements depends on experience and knowledge of nationwide, regional, and local code requirements.

Security systems. Access control should be an integral part of any well-designed data center.

Raised floor/cabling systems. There's more to a safe raised floor than covering a grid with tiles. Air flow, electrical access, and cable management all come into play.

Electrical. Providing adequate power for current and future needs is a complex task. Combine backup generators or flywheel systems, UPS, and surge suppression, and the amateurs will quickly be separated from the professionals.

Managing Expectations

A design and construction firm can help make the process of deploying or expanding your data center far more cost-efficient and effective than doing it yourself. However, the success of your project depends on your own involvement as well. Effective communication of your requirements, goals, and budget are critical to the success of any data center. Providing vague guidelines and timetables to a firm is akin to telling a restaurant waiter to "bring me whatever you have" and expecting it to match your tastes.

Shop Before You Sign

It should go without saying that you shouldn't pick the first firm that you find through your contacts or Internet searches, yet the urge to commence design and construction can encourage even the most thorough companies into hasty actions. Resist this urge and solicit multiple bids after reviewing our "What To Look For" sidebar. When your data center is running smoothly, you'll look back on the entire process and be thankful for performing due diligence. □

What To Look For

Finding the appropriate firm for your needs isn't so much a matter of separating the wheat from the chaff as in finding a soul mate who understands your wants and needs. Here are three key tips to use while searching for your data center match.

Communication. If the firm doesn't respond promptly to your inquiries, odds are they'll give you short shrift after you've signed a work order. Make sure that you have a good rapport with the firm you select.

Experience in your domain. Need a clean room? Or want to use DC power? Be sure the target firm has extensive experience in any unique requirements you have.

References. Ask each firm for three or more references and be sure to spend enough time talking to them about the firm's performance. You may not hear all the bad news, but if you can read between the lines, you'll have a better idea of how the design firm performs.

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Growing Pains?

Continued from Page 9
and cooling, and it even boasts a built-in Visio interface, too. CAD software can also be useful, if tricky to learn.

Of course there's more to planning for growth than dreaming and scheming about servers. Growth and relocation specialists Forsythe Technology suggest you factor raised floor, security, redundancy, and plain-

old floor space into the mix. And, of course, there are the dual specters of power and cooling that must be dealt with in advance.

Cooling is among the hardest predictions to make. You'll need to compute the heat load from your servers and from the room they're in, including all windows, lights, and people, all of which make things hotter and must be assigned a number value to be

compared against the output of your cooling system. To make things worse, those number values can derive from different systems, including BTUs (British Thermal Units), watts (which is becoming a standard), and even tons (which derives from the power of ice to cool air).

But there's help. Computing the BTUs of rooms, windows, and people is often a matter of basic multiplication. For instance, to compute the cooling power needed for one server, multiply its wattage (or volts times

amps) by 3.41 because each watt demands 3.41 BTUs to cool it. For more thorough information on planning your power and cooling demands, read "Power Up, Cool Down" on page 11.

The goal is to be as precise as you can without the benefit of clairvoyance. After all, tarot cards have never ranked high as data center tools, and you don't have a crystal ball. But with foresight and the right prep work, you can plan for growth even better than those who do. □

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- 97% of stolen computers are never recovered. (FBI)
- 1 out of 10 laptops will be stolen or lost each year. (Gartner Group)
- 32 States have passed the Security Breach Notification Law, which only applies to unencrypted information.
- More than 32 million Americans have had sensitive personal data exposed during the

past seven months and nearly 90 million since the ChoicePoint incident last year.

- 20% of customers who received a breach notification terminated the relationship due to lack of trust. (Ponemon Study)
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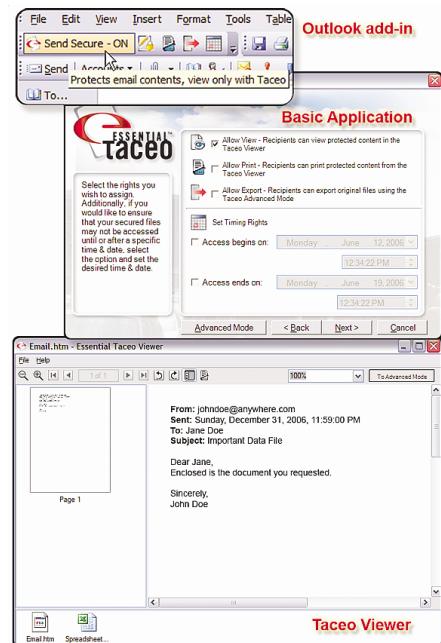


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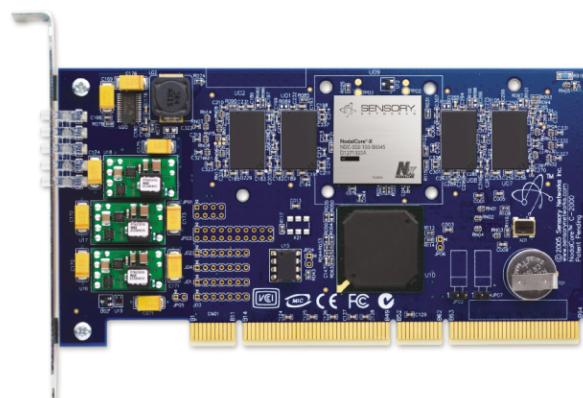
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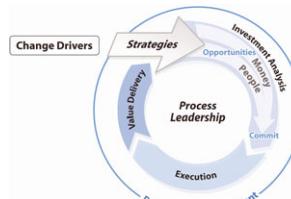
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- Support for NetFlow V9
- IP Address-Based Application Mapping
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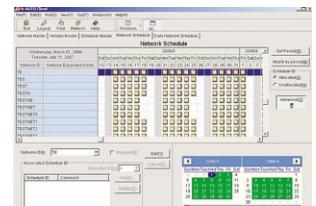
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ManageEngine WiFi Manager 4.5 - Integrated Wireless LAN Management & Security Software

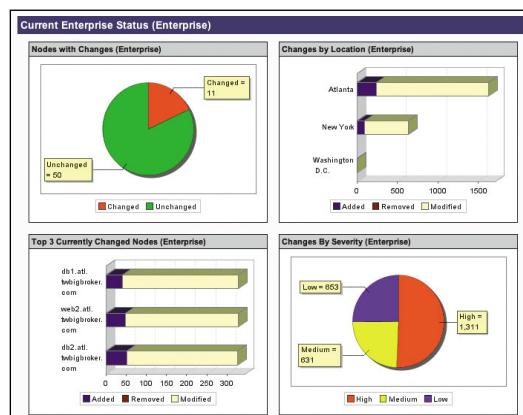
- Enterprise Edition-Support for Large Scale Wireless LAN
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Now You Can Detect All Changes To Database Structures With Tripwire Enterprise

Provides Increased Visibility So You Can Quickly Reconcile Changes



TRIPWIRE ENTERPRISE/DB for databases is the new Tripwire Enterprise component that monitors and detects all changes to database structures. Increased visibility into database structure change enables staff to quickly reconcile changes with authorized work orders and focus remediation efforts on undesired changes. The Enterprise/DB component identifies what changed, who made the change, when, and how the change was made.

Change is the most significant threat to an enterprise's compliance status, security posture, and ability to deliver high-quality IT services. Just as a chain is only as strong as its weakest link, an IT service stack is only as controlled as its least controlled component. Tripwire Enterprise independently audits changes across the entire IT

service stack—servers, desktops, middleware, directory services, network devices, and now, databases.

The various components work together, ensuring all changes are auditable by providing a trusted and verifiable audit trail of all system changes. This helps to reduce unplanned work, provides auditable data to simplify IT audit preparation, and supports services quality and security initiatives.

The Enterprise/DB component broadens Tripwire Enterprise's coverage of the service stack, providing a single point of management control for ensuring all changes are auditable, all changes are authorized, and that all unauthorized changes are investigated.

Tripwire Enterprise/DB

Provides a single point of management control for ensuring all changes are auditable and authorized

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Offers Simple View To Restore & Update Files & Folders

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downtime. ShadowProtect provides a simple view to restore or update files and folders to your existing backup image files. Save backups to any disk device, including USB, FireWire, attached storage devices such as NAS and SAN, and any network location.

ShadowProtect Advantages:

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- Reduce backup complexity while increasing backup reliability
- Back up only changed data for minimal storage consumption
- Backup image consolidation for simple management

- Schedule full or incremental backups
- Recover your servers remotely
- Mount point-in-time backups for simple file and folder recovery
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- Wide variety of optional enhancement features
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 - Wide range of temperature (optional)
 - Wide viewing angle (optional)
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 - Fast integration service and turn around time (3-5 working days)
 - Direct drop ship services
- High product reliabilities
 - Built in with protective glass for harsh environments
 - Lower systems power consumption for 7/24/365 environments

Product Applications

- HMI Factory Automations
- Data Acquisitions
- Interactive/ POS/ Kiosks
- Military / Marine
- Medical HMI solutions
- Security/Monitoring systems
- Transportations
- Telecommunications
- Video Processing

Systems Specifications

CPU Socket	Socket 479
Processor (optional)	Intel® Pentium M/Celeron M up to 2.0GHz
Front Side Bus	400 MHz
Chipset	Intel® 855GME/ICH4
Memory (optional)	One 184-pin DDR DIMM Max. 1GB
BIOS	Award 4Mbit
VGA Controller	Intel® 855GME integrated
VGA Memory	Shared memory Max. 64MB
LCD Support	24-bit LVDS (dual channel)
Ethernet	Intel® ICH4 integrated+PHY 82565EZ
Audio	Intel® 82541 GI Gigabit Ethernet
Hard Drive	Built-in audio+AC97 codec
Super I/O Chipset	1 U DMA33/66/100 (2.5")
Parallel	W83627HF
Serial	1 SPP/EPP/ECP port
Fire Wire	2xRS232
USB	2 external port /2 on board pin headers
KB / Mouse Connector	PS/2
Watchdog Timer	256 Levels
Expansion Slots	1xPCI,1xMini PCI internal
Power Adapter	DC In 12V
Operation System (optional)	Win XP or XP Embedded

Environment

Temperature	Operating: 0~50°C Storage: -10°C ~ +60°C
Humidity	Operating: 5~95% non condensing Storage: 5~95% non condensing
Shock	Operating: 15G, 11ms duration
Vibration	Operating: 5 Hz ~ 500 Hz / 1 Grms/ 3 Axis
Warranty	Packing: 5 Hz ~ 500 Hz / 2.16 Grms/ 3 Axis Std: 1-yr parts/labor-return to depot Opt: 2-3 yrs ext-parts/labor-return to depot
Certification	CE FC RoHS COMPLIANT 2002/95/EC

Model	8.4"	10.4"	12.1"	15"	17"	19"
System Platform	PM08B89T-T1	PM10B89T-T1	PM12B89T-T1	PM15B89T-T1	PM17B89T-T1	PM19B89T-T1
Industrial TFT LCD Specification	Intel Pentium M/Celeron M					
Viewable Size Image	8.4"	10.4"	12.1"	15"	17"	19"
Active Display Area(mm)	170.4(H)x127.8(V)	211.2(H)x158.4(V)	246.0(H)x184.5(V)	304.1(H)x228.1(V)	337.92(H)x27.34(V)	376.32(H)x301.056(V)
Pixel Pitch(mm)	0.216(H)x0.213(V)	0.244(H)x0.265(V)	0.3075(H)x0.3075(V)	0.297(H)x0.297(V)	0.264(H)x0.264(V)	0.294(H)x0.294(V)
Number of Pixels	800x600	800x600	800x600	1024x768	1280x1024	1280x1024
Contrast Ratio	300:1(typ.)	350:1(typ.)	200:1(typ.)	500:1(typ.)	500:1(typ.)	1000:1(typ.)
Display Color	262144(6bit/colors)	262144(6bit/colors)	262144(6bit/colors)	16.2M(8bit+FRC)	16.2M(8bit+FRC)	16.7M(8bits/color)
Brightness(CD/m²)	350(typ.)	350(typ.)	300(typ.)	250(typ.)	280(typ.)	250(typ.)
Viewing Angle(CR>=10)	-50~50(H)-30~60(V)	-60~60(H)-60~40(V)	-60~60(H)-55~40(V)	-65~65(H)-55~65(V)	-75~75(H)-60~70(V)	-85~85(H)-85~85(V)
Recommended Resolution	800x600	800x600	800x600	1024x768	1280x1024	1280x1024
Power source	AC110~240V,Universal,±10%	AC110~240V,Universal,±10%	AC110~240V,Universal,±10%	AC110~240V,Universal,±10%	AC110~240V,Universal,±10%	AC110~240V,Universal,±10%
Power Consumption	55W typical, normal operation	55W typical, normal operation	55W typical, normal operation	65W typical, normal operation	75W typical, normal operation	80W typical, normal operation
Touch Screen	Fuji 4 wire Resistive/RS232	Fuji 4 wire Resistive/RS232	ELO 5 WIRE Resistive/RS232	ELO 5 WIRE Resistive/RS232	ELO 5 WIRE Resistive/RS232	ELO 5 WIRE Resistive/RS232
Warranty	Std: 1-yr parts/labor-return to depot Opt: 2-3 yrs ext-parts/labor-return to depot	Std: 1-yr parts/labor-return to depot Opt: 2-3 yrs ext-parts/labor-return to depot	Std: 1-yr parts/labor-return to depot Opt: 2-3 yrs ext-parts/labor-return to depot	Std: 1-yr parts/labor-return to depot Opt: 2-3 yrs ext-parts/labor-return to depot	Std: 1-yr parts/labor-return to depot Opt: 2-3 yrs ext-parts/labor-return to depot	Std: 1-yr parts/labor-return to depot Opt: 2-3 yrs ext-parts/labor-return to depot
Optional Mechanical Design	Panel Mount- IP65/NEMA4 Open Frame Chassis	IP08B89T-T1 OF08B89T-T1 CH08B89T-T1	IP10B89T-P1 OF10B89T-P1 CH10B89T-P1	IP12B89T-M1 OF12B89T-M1 CH12B89T-M1	IP15B89T-C3 OF15B89T-C3 CH15B89T-C3	IP17B89T-M1 OF17B89T-M1 CH17B89T-M1



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Product Releases

PHYSICAL

HVAC

■ **Emerson Network Power** has announced the release of its Liebert XDH row cooler, which is designed to efficiently and economically cool high-density equipment. The XDH is part of Emerson's Liebert XD line of cooling solutions that are meant to supplement traditional cooling methods and target high-density areas. The XDH, which can cool more than 30kW per rack using waterless pumped refrigerant technology, was designed specifically for data center applications in which there is little overhead working space.

Power Distribution

■ **Pulizzi Engineering** announced its compliance to the RoHS Directive standards. RoHS-compliant products include all catalog products designed for use in the European Union market, which are identified by the IEC (International Electrotechnical Commission) type C13 "computer style" connectors.

COMMUNICATIONS

Application Networking

■ **Cisco Systems** announced an integrated branch office solution that, with its included WAAS (Wide-Area Application Services) software, accelerates the performance of any TCP-based application across the WAN and enables the consolidation of the branch office server, storage, and backup infrastructure for easier management and lower cost. Cisco also introduced a network module for running WAAS software on the Cisco ISR (integrated services router). The Cisco WAAS solution includes the WAAS software and the Cisco WAE (Wide-Area Application Engine) appliance family, as well as new network modules (WAE-NM) that integrate with Cisco's 2800, 3700, and 3800 Series Integrated Services Routers. The appliance-based branch office solution is available immediately starting at \$8,500, and the network module solution will be available later this year starting at \$4,000.

Network & Systems Management

■ Enterprise data center company **NetworkStreaming** has released the SA300, an

enterprise-grade appliance that is part of the company's series of appliance-based remote support products. NetworkStreaming says the SA300 was designed based on demand from companies in need of a high-capacity, enterprise-grade remote solution. Among the SA300's features are tools for redundancy, QoS, and faster processing via the use of dual processors and PSUs and four hard drives. The SA300 ships for \$9,995.

Security

■ **IPolicy Networks** announced that it will support Microsoft NAP (Network Access Protection) policy enforcement technology, which appears in Microsoft Windows Vista, through integration with its network security solution. IPolicy's solution protects desktops, servers, and networks via its single-pass deep inspection architecture. Additionally, it provides intrusion prevention, as well as content filtering and stateful firewall protection. IPolicy offers Intrusion Prevention Firewall 2.5, among other security products.

■ **Secure Computing** released a new IAM (identity and access management) appliance. The SafeWord SecureWire 50

offers secure SSL VPN-based remote access for up to 50 concurrent users. It offers wireless LAN management, endpoint device security, and internal NAC (Network Access Control), as well as SafeWord authentication tokens, which work with remote access packages to identify users who want to enter the network. SecureWire provides protected access to all of an enterprise's network applications and data. An optional module lets the SecureWire 50 support up to 100 concurrent users. The SecureWire 50 appliance is available for \$19,995.

Switch

■ The iBypass Switch from **Net Optics** is a device that preserves a secure network connection should an in-line component need service. Unique to the iBypass Switch is the device's ability to offer admins a clear, actionable look at network utilization and appliance deployment. Remote control and configuration, browser and SNMP management, and bandwidth utilization reporting round out the iBypass's features.

Go to Page 17

Identify, Prioritize & Report Security Risks

McAfee Enhances Its Management Portfolio

by Daniel P. Dern

YOUR COMPANY COULD EASILY spend its entire IT budget on security. But if you don't know which data and systems are most important, and which have serious vulnerabilities, you could easily not be secure enough or not be in compliance with regulations such as Sarbanes-Oxley or even your own security policies.

Security vendor McAfee has added several new security products to help simplify these processes of risk management and risk compliance reporting: McAfee Foundstone Enterprise 5.0, which identifies vulnerabilities and prioritizes recommended remediation (for example, applying patches or fixing configurations); Preventsys Compliance Auditor; and Preventsys Risk Analyzer.

According to Rachel Ackerly, senior manager of product marketing at McAfee, new features and capabilities in Foundstone Enterprise 5.0 include the ability to scan Solaris, Red Hat, IBM AIX, and Cisco IOS systems. Previously, Foundstone could only scan Windows systems. McAfee has also added SSH-authenticated assessment for these platforms and two-way SNMP communication with third-party applications such as BMC Remedy, which helps customers simplify their patch management systems. Also, Ackerly says, "We've integrated Foundstone with our IntruShield network intrusion detection system, so it can determine whether hostile traffic is targeting a vulnerable system."

Preventsys Compliance Auditor and Risk Analyzer (McAfee purchased Preventsys earlier this year) provides compliance reporting, and, says Ackerly, aggregates data from a variety of types of sources, including Foundstone and other vulnerability assessment tools, along with configuration

management tools and threat feeds such as VeriSign's iDefense.

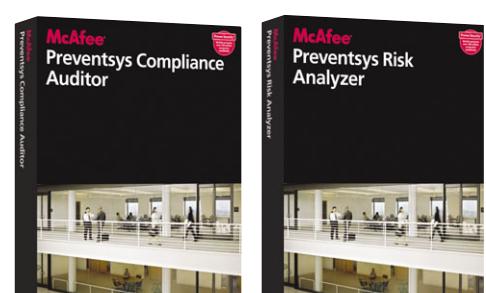
Compliance Auditor works only with McAfee systems such as Foundstone, according to Ackerly, while Risk Analyzer is intended for companies with multiple security solutions to consolidate threat data, monitor changes, and automate their security status.

Also, says Ackerly, "Preventsys is currently the only system that can take information from multiple vendors or do this compliance reporting against a corporate security policy. This ensures you are really adhering to the security policy."

Foundstone requires an appliance, such as the \$7,500 FS1000; Preventsys runs on hardened Linux-based OSes and requires a management server and a minimum of one assessment server.

In terms of competition, "Vulnerability management is a crowded space—all the vulnerability assessment vendors, like eEye, ISS, nCircle, Qualys, StillSecure, and

Tenable have moved in this direction," says Andrew Braunberg, senior analyst of information security at Current Analysis. "Policy vendors, like BindView/Symantec, Citadel, and Pedestal/Altiris, have also moved in this direction, and also watch the bigger vendors like CA, IBM/Tivoli, and Symantec." The auditor and risk management piece is a new component of these suites, Braunberg notes, citing Cybertrust as another company in this area. **P**



SNAPSHOT

McAfee Foundstone & Preventsys

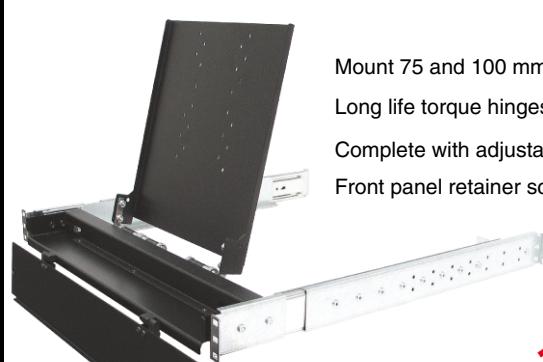
Assuming a 5,000-node (device or driver to be connected) network, Foundstone licenses are \$16.80 per node (perpetual); support is \$3.36 per node. Preventsys Compliance Auditor is \$4.03 per node per year; Preventsys Risk Analyzer is \$8.06 per node for a one-year subscription.

Automatically identify and prioritize security concerns for remediation and compliance reporting

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PROCESSOR

Product Releases

Continued from Page 16

Telephony

■ **TRENDnet** announced the ClearLink VoIP USB Speakerphone for Skype, a phone designed to make Skype easier to use in the home or office. The VoIP phone includes a backlit, high-resolution LCD to display call history and caller ID; hotkey functionality and Echo-cancellation technology provide ease-of-use and clear calls. The phone is powered via your computer's USB connection. The ClearLink VoIP USB Speakerphone will be available for about \$70.

END NODES

KVM & Console Access

■ **AIS** has announced its LDS line of 1U rackmount KVM Console LCD Monitors, available in 1-, 8-, and 16-port configurations and in 15-, 17-, and 19-inch designs. Each monitor's keyboard and touchpad mouse are integrated into a slide-out drawer, and the products feature protective glass, making them ideal for use in most locations. They also include an industrial power supply, front-panel controls, and a standard D-sub 15-pin VGA connector in an ultra-low 1U flip-up

display enclosure. The LDS systems support AT/XT, PS/2, Unix, Sun, and Mac OS. Prices start at \$999 (MSRP) for the LDS210D model.

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■ **Aten** has announced the release of its new CAT-5 KM0832 Matrix KVM Switch, which is designed specifically for multiple server rooms in large corporations. The enterprise-class, eight-console, 32-port switch is part of Aten's Altusen line of enterprise KVM products and lets eight users directly manage up to 32 servers. The KM0832 includes multiplatform support for servers and consoles and can be expanded to support thousands of servers. The 1U rack-sized KM0832 has a detachable front panel and an additional local console port on the front panel.

Mobile

■ **HP** announced that its 9400, 8400, 7400, 6400, 6300, and 4400 series business notebook and tablet PCs are now available with Intel Core 2 Duo processors, allowing for improved performance and the ability to run more applications simultaneously. The PCs offer enhanced security and are Windows Vista Capable, providing for investment protection and are further Vista-optimized with 64-bit computing power.

Monitors & Displays

■ **BenQ** claims that its new FP222W 22-inch widescreen LCD monitor has the fastest pixel response time on the market at 5ms. The display has a WSXGA+ 1,680 x 1,050 native resolution and dual D-sub and DVI inputs. The FP222W also boasts BenQ's Senseye digital enhancement technology, which automatically adjusts several image quality attributes, such as brightness, darkness, and contrast levels, and reduces jagged edges.

.....

■ **HP** announced a 30-inch diagonal wide-aspect screen, the HP LP3065 display. The company also plans to release 19- and 20-inch diagonal sizes with expected availability in early November.

Printer

■ **Xerox** announced the WorkCentre 4150, a desktop multifunction printer that can print up to 45ppm. The WorkCentre 4150 black-and-white multifunction printer is available in four configurations, from a basic copy-only version to an advanced version that can simultaneously print, copy, scan, and fax. It offers automatic two-sided printing on all configurations and features Print Queue Management and Automatic

Print Around to move important print jobs to the front of the queue. The WorkCentre 4150 also provides network authentication by requiring usernames and passwords to use scan, email, and fax features.

Server

■ **Supermicro** released several quad-processor server platforms based on the dual-core Intel Xeon processor 7100 Series and Intel E8501 chipset. The 1U SuperServer 8014T-8/T uses a X6QT8+/E+ server board to sustain up to 64GB of DDR2 memory via 16 DIMM slots. Three hot-swap SCSI/SATA drive bays and a 1,000-watt high-efficiency power supply are used to increase power efficiency and lower energy costs. The server platforms support 32- and 64-bit applications that are backward-compatible with single-core Xeon MP processors. The SuperServer 8044T-8R has redundant high-efficiency 1,000-watt power supplies in a convertible 4U/Tower chassis that features cooling redundancy. The 8044T-8R can hold up to 64GB of DDR2 memory and 10 hot-swap, dual-channel Ultra320 SCSI drive bays, with up to four dual-core Xeon MP processors. You can visit their Web site to see the entire lineup of servers.

Go to Page 18

Providing competition to Viking Interworks' Mobile Security is Verbatim's new line of USB flash drives called Store 'n' Go Corporate Secure USB Flash Drives (www.verbatim.com). These USB drives come with built-in security features including AES data and password encryption and require a password to access the data. Another company offering portable device security is Magiclab Software, whose StorageCrypt 2 lets users encrypt and password-protect hard drives, portable hard drives, and flash memory disks (www.magic2003.net). □



SNAPSHOT

Viking Interworks Viego Security & Mobile Software

Suite of applications supporting password management, data protection, and workstation security to prevent unauthorized access to files

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JUNE 23, 2006

Remote Office Backup Made Easy. NetMass introduces next-generation offsite backup for branch office environments. Convenient multisite, cross-platform protection. Automated, unattended backup of Windows servers, Linux/Unix/Solaris, AS400, Netware, SQL, and Oracle databases. Live SQL Server and Exchange backup at the brick level. Compliance with Sarbox, HIPAA, etc. A single interface manages all locations. Remote office backup solutions start at \$150 per month. Standard backup starts at \$5 per month.

"The auditors confirmed we had valid backup and restore processes, and it was incredibly fast – an entire restore took all of five minutes."

Robert Walston, IT manager, VAALCO Energy

NETMASS

The Safe Data Company



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Product Releases

■ **Transition Networks** expanded its SFP (small form-factor pluggable) media converter product line by adding networking applications that include Fast Ethernet and Gigabit Ethernet, FDDI, ESCON, SONET OC-3, OC-12, OC-48, and Fibre Channel. The additions should help customers upgrade their networks without losing their existing investments. Transition Networks also added SFP Pluggable Optics that include extended distance multimode 1000Base-SX models and several multirate Fibre Channel 2X models. All the models comply with the Multi-Source Agreement for industry standard networking equipment, and include an enhanced Digital Diagnostic Monitoring Interface to provide real-time data.

■ **Verbatim** announced a line of Store 'n' Go Corporate Secure USB Flash Drives designed with mandatory security features to protect data contents. The mandatory security features include hardware-based AES (Advanced Encryption Standard) data encryption and antitamper password entry protection. The Store 'n' Go requires the use of a complex password protected by a SHA-1 hashing algorithm to ensure passwords aren't stored in the drive's memory. After ten consecutive failed login attempts the flash drive enters lock-down mode and erases all data. To see the full range of Store 'n' Go Corporate Secure USB Flash Drives visit Verbatim's Web site.

Workstation

■ A new industrial panel PC from **Advantech** has a 17-inch SXGA LCD and support for a 2.8GHz Pentium 4 or 2.5GHz Celeron processor. The IPPC-9171G has a front USB port, dual PCI slots, and support for up to 2GB of DDR400 SDRAM. It's built of stainless steel with an abrasion- and acid-resistant aluminum fascia, and its glass is shock-resistant. Pricing starts at \$2,100.

■ The **HP Compaq** dc7700, dc5700, and dc5750 Desktop PCs now have features such as the soon-to-be available Intel vPro technology, standard Trusted Platform Module 1.2 embedded security chips, and AMD64 desktop processors with Cool'n'Quiet technology. The HP xw9400 Workstation uses Next-Generation AMD Opteron processors and features dual-core, dual-processor horsepower and full-performance, dual high-end graphics.

Components

■ **Intel** has introduced eight new Dual-Core Xeon 7100 Series processors for multi-processor servers. This line of processors, which were codenamed Tulsa, include a low-power (95W) option. The Dual-Core Xeon 7100 CPUs are manufactured with a 65nm process, have more than 1.3 billion transistors and 16MB of shared cache. The new processors are compatible with Intel's existing E8501 chipset.

■ **Sensory Networks** announced NodalCore C-2000 SX, a network security PCI accelerator card capable of up to 500Mbps throughput. The NodalCore C-2000 SX is built with reconfigurable technology that can be reprogrammed after the cards have been deployed. The NodalCore C-2000 SX is designed for the SME market and will cost \$399 in volume when bundled with applications.

SOFTWARE

Application & Web Development

■ **Adobe Systems** has announced Adobe Captivate 2 for designing e-learning applications, such as interactive simulations, software demos, and training modules. The software is built around Macromedia Flash but requires no knowledge of Flash programming to use. Captivate 2 can create multimedia files with interactive features, scoring, audio, and video. The software can produce SWF, EXE, and MP3 files and integrates with Breeze, Authorware, Questionmark Perception, and other SCORM/AICC-compliant LMSes. Adobe will ship Captivate 2 before the end of the year, and it will cost \$599. An upgrade version will also be available for \$299. Volume discounts, government licenses, and education licenses will also be available.

Database & Data Mining

■ **Ingrian Networks** is partnering with **Empress Software** to offer users of the EMPRESS Embedded Database new software that lets them move cryptographic functions from Empress databases to network-based Ingrian hardware appliances. The software integrates tightly with Empress user security and centralizes key management in the network appliance. It supports encryption of data at the database column level and has authentication and authorization capabilities.

Go to Page 20

Cezeo's LanTalk NET 3.1 is one such application because it is designed to work inside a company's firewall. Even so, an administrator can configure it to allow connection to users beyond the corporate walls if necessary. LanTalk NET delivers security partly because it uses a proprietary client that isn't compatible with the hosted IM services such as Yahoo! and AOL. In fact, the LanTalk NET doesn't rely on a server at all and is strictly a peer-to-peer service.

The installation process automatically assigns the current Windows username as the IM ID, making setup fast and easy. Once launched, the program shows a list of currently connected users.

LanTalk NET is similar in many ways to email. Rather than sending a message to a single user at a time, the user selects recipients from the list of both online and offline accounts. Messages sent to offline users are held for delivery when the user logs in. Also like email, it's easy to attach files and use the WYSIWYG editor to create messages.

According to Pavel Sokolov of Cezeo Software, "Our customers like LanTalk NET because it's an easy-to-use and feature-rich instant messenger. The most frequent use for LanTalk is for interoffice

communications, sometimes within a single office building but sometimes between offices in different cities." LanTalk works well across WANs, according to Cezeo.

"LanTalk NET is also popular in the educational environment because it doesn't require a server and the associated administration," says Sokolov.

Besides LanTalk NET, several similar applications are designed to support private instant messaging. They offer similar functionality and pricing starting at under \$20 per user, with discounts for multiple copies. Softros LAN Messenger also includes integrated Microsoft Terminal Services as an add-on (www.softros.com). And Akeni LAN Messenger supports drag/drop file transfer and runs on Linux as well as Microsoft Windows platforms (www.akeni.com). □

SNAPSHOT

Cezeo Software LanTalk NET 3.1

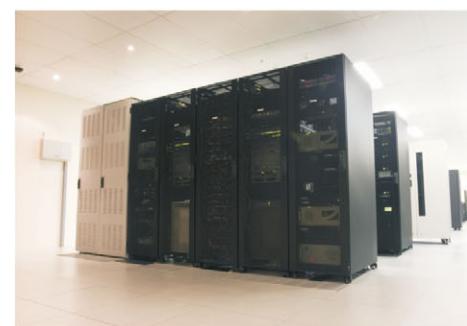
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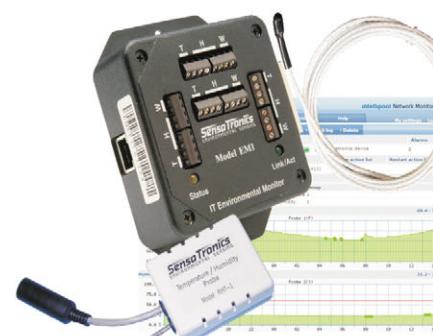
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Product Releases

Continued from Page 19

Messaging & Groupware

■ **Scalix** announced Scalix 11, a new Linux email, calendaring, and messaging platform for the enterprise and open source projects. New features include a Web services platform and mobile client, enhanced management capabilities, and ongoing improvements to Scalix's Web client and Outlook support. A Community Edition Preview is available for download and the commercial release will be available in November.

Network & Systems Management

■ **AirMagnet** announced AirMagnet Planner, which is available as both a standalone product and as part of AirMagnet Survey 4.0. AirMagnet Planner provides RF planning, WLAN design tools, and predictive maps. The software analyzes wireless performance and interference and how these things relate to the office's construction and arrangement. AirMagnet Planner can provide guidance in purchasing, placing, and configuring WAPs. In addition to AirMagnet Planner, AirMagnet Survey 4.0 also includes other new features, such as Spectrum Interference Alarms and Analysis, Roaming Control, and integration with AirMagnet Laptop Analyzer. AirMagnet Planner is available for \$1,000 as an upgrade for current AirMagnet Survey customers or for \$2,000 as a standalone product. AirMagnet Survey 4.0 Standard is available for \$1,995, and AirMagnet PRO is available for \$3,695.

■ **Cisco Systems and SAP AG** entered into a joint marketing agreement for the United States and Canada that will address GRC

(governance, risk, and compliance) business processes and IT control issues across the entire IT infrastructure. Cisco and SAP are collaborating by providing complementary solutions that offer new levels of IT management and controls between Cisco SONA (Service-Oriented Architected Network Architecture) and the three new applications in the portfolio of SAP solutions for GRC: SAP GRC Repository, SAP GRC Process Control, and SAP GRC Risk Management.

■ **HP** announced enhancements to its entry-priced PC hardware and software configuration management solution, HP OpenView Client Configuration Manager 2.0. In addition, HP announced that all commercial HP notebooks, desktops, and workstations will begin shipping with a preloaded HP OpenView Configuration Management agent. HP expanded its free HP Client Manager centralized hardware management solution to identify and initialize PCs on corporate networks that feature embedded Trusted Platform Module security. Select models of the HP Compaq dc7700, dc5700, and dc5750 business desktops will include a no obligation, 60-day free trial of the HP Smart Desktop Management Service, as well as personalized online help by an HP support expert should a customer experience a security or data loss incident. HP Financial Services also introduced flexible new financing options on a variety of HP business PCs, workstations, servers, and printers or special lease rates on nearly every HP printer.

■ **Netopia** has announced that its Timbuktu Pro remote control software now has support for Mac systems running on Intel CPUs and also now includes Skype integration. The software lets Mac users connect to, collaborate with,

and observe/control Mac and Windows computers via the Internet. The software can now do this using a Skype connection. Netopia is also touting its Web-based remote control call center app eCare 4.5, which is designed for service providers, call center outsourcers, and help desks. eCare 4.5 supports Apple's Safari and Microsoft's Internet Explorer browsers.

■ **Quest Software** announced Quest Site Administrator for SharePoint. Quest Site Administrator provides Automated Discovery, Comprehensive Reporting, Simplified Access, and Global Policy Management features to help administrators better understand their SharePoint environment.

Security

■ **Elcomsoft** released the Elcomsoft Password Recovery Bundle, which lets organizations and law enforcement officials open password-protected files. The Standard Edition of the software bundle includes single license Advanced ACT, Archive, EFS Data, IE Password, IM Password, Intuit Password, Lotus Password, Mailbox Password, WP Office Password, Office Password, OE Password, and System Password Recovery programs, as well as Advanced WP Office Password Breaker. The Business Edition includes the Standard Edition programs (10 licenses each), Proactive Password Auditor (up to 100 accounts), and Distributed Password Recovery (up to 100 clients). The Enterprise Edition includes the same programs (50 licenses each) and supports up to 2,500 accounts and clients for Proactive Password Auditor and Distributed Password Recovery, respectively. Password Recovery

Bundle Standard Edition is available for \$1,299.

■ **Pointsec**'s new Pointsec for Linux 2.0 is endpoint encryption software for desktops and laptops. Preboot authentication, single sign-on, increased system file security, and remote assistance support are all new features in version 2.0. Also, an updated interface allows login screen customization.

■ **VIA Technologies** unveiled VIA PadLock CSP (Cryptographic Service Provider), a software module that enables the Microsoft Cryptographic API (Application Programming Interface) to delegate security duties to the VIA PadLock Security Engine integrated into VIA C7 family processors. VIA PadLock CSP uses real-time PadLock hardware security to secure online, desktop, embedded, and mobile applications. The software module uses the Microsoft Cryptographic API to accelerate AES ciphers, SHA secure hashes, and public key generation.

Storage

■ In an effort to increase the reliability of tape storage, data access provider **McData** has announced the release of Virtual Tape Library, a disk-to-disk-to-tape product. The product allows for the backing up and usage of both disk and tape media. VTL features the ability to emulate tape libraries but use disk storage for backing up and restoring. VTL can also import and export from physical tapes for portability without having to change data formats so that backup software can still read physical tape without VTL. The product is available through resellers and from McData.

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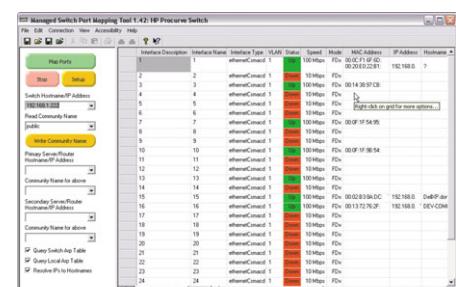
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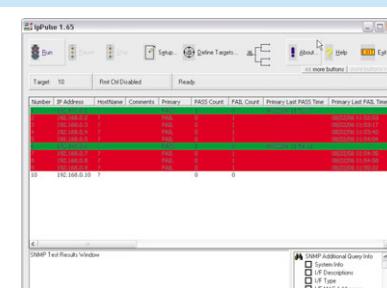
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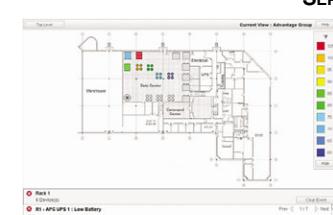
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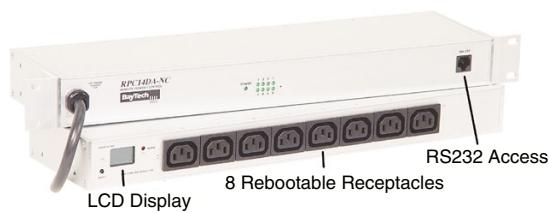


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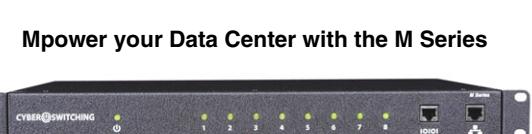


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OPINIONS

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Rethinking HSM For NAS Capacity Management

HSMS (hierarchical storage management) is a technology that automatically moves data from primary storage to secondary storage—and back again—according to a set of policies concerning such things as the age of a file, its size, and what application created it, among others. The basic idea is that data that takes a lot of storage space and isn't being used could be moved from primary storage to secondary storage until sometime in the future when it might be accessed again by a user or an application.

HSM's Usefulness

If this sounds like something that could be useful as a data management tool, it is. Think how valuable it would be to create policies for the unstructured data in your file systems that would determine which files to move from primary to secondary storage when you needed more storage capacity. Moreover, if you ever need files that have been moved, the retrieval is automated and does not require administrator action. All this work can be done by an HSM system through interactions with the operating and file systems on the machines where you want HSM running.

As it turns out, HSM has successfully been used in mainframe environments for many years but is used far less commonly in open systems environments. The reason for this is simple: Mainframe environments are dominated by a single vendor (IBM) where the various file system and operating system interactions needed by HSM functions are very well defined, whereas open systems environments have many more degrees of freedom where file system/operating system interactions are concerned. Porting an HSM system across multiple platforms is a very difficult effort,

MARC FARLEY

AUTHOR Marc Farley is the author of "Building Storage Networks," the leading technology book in the field of storage networking. He is also the president of Building Storage, Inc., a company that provides consulting and educational services to the network storage and financial services industries. Farley regularly writes and speaks about storage networking technology and is an online expert for the SearchStorage Web site.



which helps to explain why this software is not more common for open systems.

This is not necessarily what one has come to expect from the concept of open systems computing where standardized interfaces are used broadly to achieve a

high level of interoperability. However, the noble idea of open interfaces does not apply to the arcane and Byzantine world of system kernels and file systems. Certainly the development of operating systems and file systems is difficult, but you still have to wonder why things have progressed so slowly with file system technology in the last few decades. The incredible progress made in processor and networking technologies during this time is almost staggering. Over the same time period, the evidence of progress for file systems is astoundingly underwhelming. Considering that so much potential storage functionality depends on file system capabilities, the situation needs to be improved.

One of the places where HSM can make a breakthrough is in NAS systems. By targeting HSM software to a specific NAS platform, the problems of heterogeneous platform support are practically erased. Not only that, but the installation and setup complexity of HSM can be dealt with much more effectively with an integrated appliance product approach.

Meeting The Challenges

One of the biggest challenges for NAS administrators historically has been the lack of scalability. If additional NAS systems need to be installed to accommodate steady, heavy data growth, administrators have to update all the affected login scripts for users, as well as applications scripts to ensure that everybody can access his existing data that had to be copied to a new file system. The

larger the system, the more obnoxious the problem. An HSM system would be an excellent software approach to dealing with NAS scalability problems. When capacity starts to run out, turn on the HSM software and start migrating data to secondary storage. If you need more storage capacity, buy less-expensive secondary storage and let the HSM system use it when it needs to.

I usually like the way NAS leader Network Appliance does things, but I think it has overlooked a good solution to its customers' NAS pain when it decided to develop clustering technology for its NAS filers. NetApp customers can increase the capacity of their NAS systems by buying a lot of additional hardware at significantly higher cost. Not only that, but sooner than one might expect, the clustered NAS solutions are going to run out of capacity, necessitating a major upgrade from the current cluster system to an even larger clustered NAS system.

So the question is: If Network Appliance doesn't develop HSM for NAS, who will? The company with the best chance to make NAS-based HSM a reality is SGI. Its DMF (Data Migration Facility) HSM product is one of the few working HSM technologies deployed today in large-scale environments. It doesn't mean you can buy a NAS system today from SGI with built-in HSM, but if SGI wants to be in this business, this would be a good way to make its mark.

EMC and HP could do it too, but those companies would need to acquire the technology—something that's not impossible, but it is a bit unlikely today.

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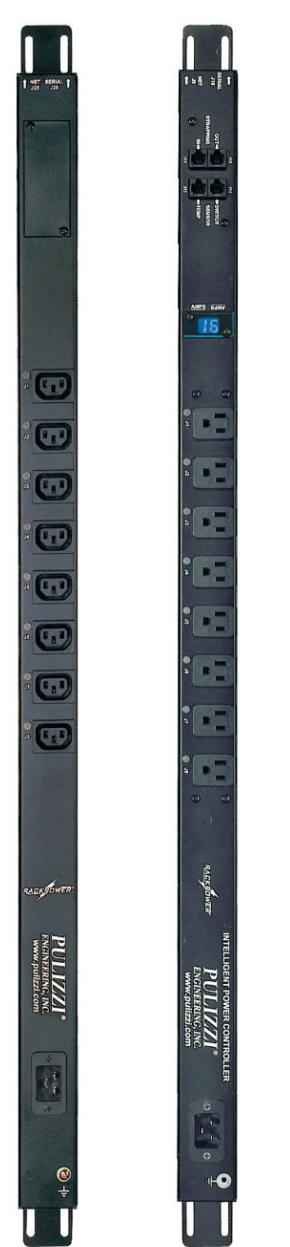
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OPINIONS

DATA • DEVELOPMENTS

SQL Server Everywhere Edition: What It's Not

In the last two weeks I took a five-day trip back east to speak at the Parsippany, N.J., SQL Server User Group and the Roanoke .NET User Group meetings. They wanted to hear about SQL Server CLR Executables, which is a pretty new subject for most developers. They were stunned at the news that SQL Server 2000 does not and will not install on Vista. I spent the following week trying to finish my new ebook on SQL Ev (SQL Server Everywhere Edition). After having worked with this resurrected engine for about three months, I have a really good idea what it's all about—and what it isn't.

To bring you up to speed, just as the final chapter of the "Hitchhiker's Guide to Visual Studio and SQL Server (7th Edition)" was turned in for editing in April, Microsoft re-released its free SQL Server CE database engine that had morphed to SQL Mobile as "SQL Server Everywhere" edition. The SQL Server Mobile 3.0 edition was targeted (by license) for use on Windows smartphones, Pocket PC PDAs, and Windows Tablet PC systems—but not on other platforms like Windows XP or Vista. SQL Ev released that restriction.

Microsoft previewed this announcement over a year ago at an author's summit

where I gave it my support. I could see any number of interesting and important ways to leverage this tiny DBMS; I detail these in a new ebook which is intended to answer most of the questions developers will have as they try to decide if the SQL Server Everywhere edition is right for their application—and there's a good chance it is.

SQL Everywhere: It's Not SQL Server

Unfortunately, I think Microsoft has stepped off on the wrong foot as far as the marketing of this edition. For obvious reasons, Microsoft wanted to leverage the popularity and reputation of its deadly serious SQL Server DBMS. This makes sense, but technically, SQL Ev is not SQL Server (like SQL Server Express or the other paid editions). No, I don't mean to imply that SQL Ev is not suitable as a DBMS engine, because it is. It can take on quite a few important responsibilities when it comes to storing, managing, fetching, and replicating local data

stores. It's just not SQL Server and should not be expected to have the same feature set.

I think if Microsoft had called this simply "SQL Everywhere," your expectations and mine would have been different, but it was afraid of being sued by Sybase. If it had left the name "SQL Mobile," we would have better understood where it fits and what it was capable of doing, and it would not have to change the documentation (again).



WILLIAM (BILL) VAUGHN

AUTHOR William (Bill) Vaughn is an industry-recognized author, mentor, and subject-matter expert with more than 30 years in the computing industry as a developer, manager, trainer, marketer, and writer. After 14 years at Microsoft, Vaughn stepped away to work on his new books, in addition to mentoring and leading training seminars. He's written six editions of the "Hitchhiker's Guide to Visual Basic and SQL Server" and two editions of "ADO.NET and ADO Examples and Best Practices for Visual Basic Programmers." He and Peter Blackburn just finished "Hitchhiker's Guide to SQL Server 2000 Reporting Services."

But it didn't, so authors, trainers, user-education writers, and those attempting to explain where SQL Ev fits have to spend their first 800 words telling you what SQL Ev isn't instead of what it is.

New Challenges For Developers

In its current form (before Microsoft has actually released SQL Ev), experienced SQL Server developers face a litany of issues that make SQL Ev different and thus harder to use and learn but at the same time lighter and faster. For example, SQL Ev does not

support many of the most common data types like varchar, char, or Text. All of these can be replaced by using the Unicode equivalent types. The SQL supported by SQL Ev is a subset of T SQL, so I can't recommend use of the Identity attribute except for the simplest of tables. That's because the SQL Ev SQL does not permit one to "disarm" automatic generation of the identity values.

It's clear that replication will play a major role in SQL Ev implementations, but the mind-boggling complexity of setting up a secure SQL Server Publication will surely dissuade developers and architects from choosing this option without careful forethought. Tools support for SQL Ev is also spotty. While SQL Server Management Studio and Visual Studio's Server Explorer can view and manipulate SQL Ev tables, they can do so only in the most rudimentary way. They also can't script the DDL SQL as they can for "real" SQL Server. All of these impediments make it harder to learn and work with SQL Ev.

On the other hand, SQL Ev isn't JET either. It has several distinct advantages over JET, including the ability to be fully encrypted—a major benefit. It's lighter, faster, and more flexible than JET in many respects, but it does not support linked data sources like JET or SQL Server. Given the catalog of JET issues, I still think that SQL Ev is usually a better choice for a lightweight DBMS engine—even if it's not SQL Server. □

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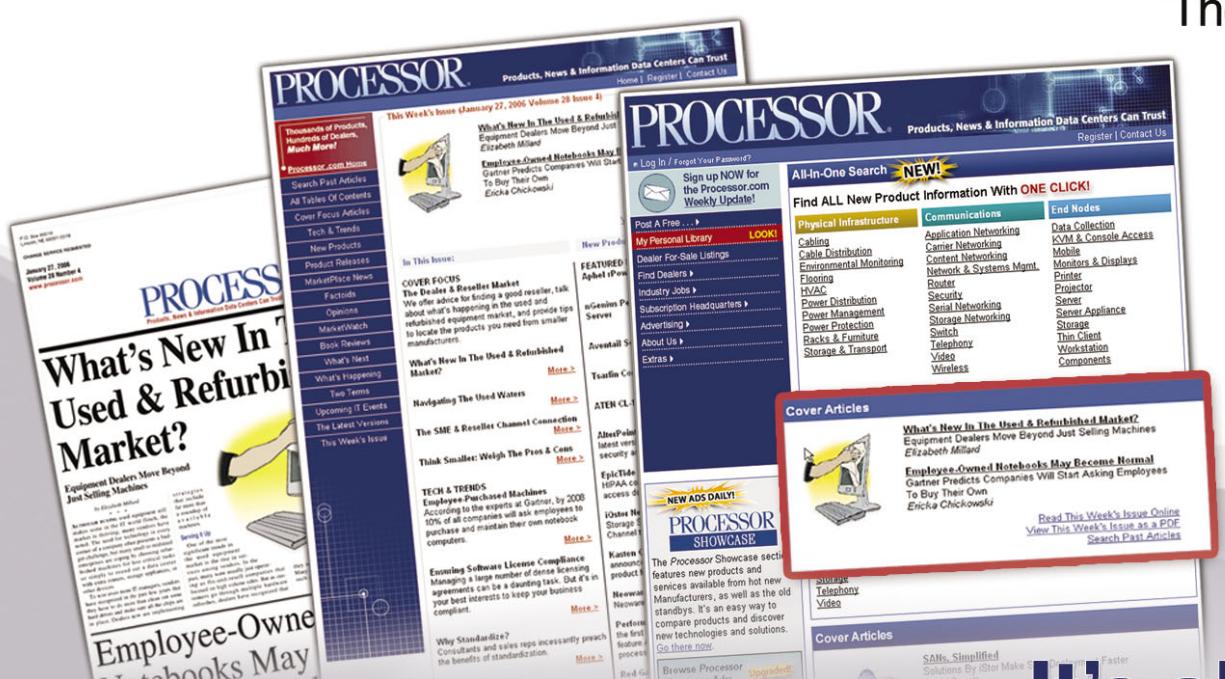
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What's Happening At Symantec?

Security Leader Hints At Change In Focus & Strategy

by Tony Bradley

SYMANTEC, FOUNDED IN 1982, has grown, evolved, and changed throughout its 24-year history. Known by many as a vendor of antivirus and system diagnostics software for home computer users, Symantec began an aggressive run of purchasing companies in 1988. The various mergers and acquisitions (see the "Acquiring The Pieces Of The Puzzle" sidebar) have served to expand its sphere of influence and establish it as one of the dominant players in the enterprise security arena, as well.

Recently, though, Symantec has been haunted by an alleged \$1 billion debt to the IRS related to unpaid taxes and penalties found in audits of Symantec and one of its most recent acquisitions, Veritas. Combine that struggle with the entry of Microsoft into the security software market, and executives at Symantec are likely hard at work developing strategies to stay ahead.

Shifting Gears

After nearly a decade of growth and spreading throughout virtually every area of consumer and enterprise security, Symantec recently announced that it is slashing funding to certain areas. The cuts will specifically affect development of security appliances, and Symantec will no longer produce the hardware for the Symantec Gateway Security, Network Security 7100, or Gateway Security Advanced Manager 3.0 appliances.

According to a Symantec spokesperson, the strategy may vary, but Symantec's

focus and goals are the same as they always were. "Symantec is focused on protecting its customers from today's threats as well as tomorrow's. As the threat landscape and customers' environments have changed, Symantec has changed, as well. However, at the heart of the company's business is a focus on protecting customers—their interactions, infrastructure, and information. While the scope of protection has expanded, that focus has remained consistent."

The Tax Man Cometh

At the heart of the shift in financial priorities may be Symantec's tax woes with the IRS related to Veritas and Symantec's acquisition of Veritas. Audits of both Symantec and Veritas identified unpaid taxes. The IRS estimates the total debt, including penalties, at approximately \$1 billion. Symantec has appealed the findings and is challenging the debt.

Ben Rothke, information security director at a New York City financial services firm, says, "I believe that even with the huge tax burden Symantec is facing that they will come out fine in the long run."

The IRS claimed that Symantec owed an aggregate of approximately \$1 billion in back taxes plus any penalties and interest (the combined total for the two separate issues). The claims were related to transfer pricing in connection with technology license agreement between the companies and their respective subsidiaries in Ireland. Of the \$1 billion claim, Symantec has settled its tax obligation for \$36 million recently,

excluding interest, compared to the original IRS assessment of approximately \$100 million.

The 800-Pound Gorilla

The IRS may be to blame for the reduced investment in hardware appliance development, but Symantec and other security software vendors have a new threat to deal with. Microsoft, with a virtual monopoly on the operating system, office productivity, and Web browser markets already, has ventured into the security space.

Microsoft purchased Romanian antivirus company GeCAD Software and established antispyware firm Giant Company Software and used their flagship products as the building blocks to start putting its own security offerings together. Windows Defender, the rebranded antispyware product, is in the second phase of beta testing, and Microsoft recently released a software security suite dubbed Windows Live OneCare. Microsoft's products may not be best-of-breed, but they seem to be solid and provide current security software vendors with a reason to worry.

As with any time Microsoft decides to put its developers and marketing muscle into a new arena, the competition raises concerns about unfair practices and Microsoft's conflict of interest. A spokesperson with Symantec says, "Symantec is concerned that Microsoft is not allowing independent security vendors access to technical information about the Windows Vista operating system in order for those vendors to develop compatible products. As a result, customers around the world will lose their ability to choose what security solutions they would like to run on their operating systems and be forced to use only those solutions offered by Microsoft. A lack of choice for customers prevents them from having the widest variety of options for security solutions to quickly address a constantly evolving landscape of security threats. In the end, a less secure Internet will result and both consumers and enterprises will find themselves more vulnerable to cyber attack."

Rothke feels that the real threat to Symantec is not Microsoft but Symantec itself. It must continue to focus on long-term

Acquiring The Pieces Of The Puzzle

In the past eight years, Symantec has been on a buying spree to acquire companies, both established leaders and cutting-edge innovators, allowing the company to piece together the technologies it needs to continue as a leader in security applications and solutions.

Ghost	June 1998
Quarterdeck	October 1998
URLabs	July 1999
L3 Network Security	March 2000
20/20 Software	April 2000
Mountain Wave	July 2002
SecurityFocus	August 2002
Riptech	August 2002
Recourse Technologies	August 2002
Nexland	July 2003
SafeWeb	October 2003
PowerQuest	December 2003
ON Technology	February 2004
Brightmail	June 2004
TurnTide	July 2004
Licr Associates	October 2004
@Stake	October 2004
Platform Logic	December 2004
Veritas	July 2005
Whole Security	October 2005
Sygate	October 2005
BindView	January 2006
IMLogic	February 2006
Relicore	February 2006

SOURCE: SYMANTEC.COM

innovation and not get caught up in short-term money savings issues.

Different, But The Same

While Symantec has had to adjust to face issues such as the IRS and Microsoft issues mentioned, its focus and dedication to security are just as they have been. Rothke says, "Corporate CISOs are extremely weary of security startups that lack a future. Symantec CEO John Thompson has been able to give these executives the confidence that Symantec will be there when they need them down the road."

Consumer Or Enterprise

Many users are familiar with Norton Antivirus and Symantec as a recognized vendor of antivirus and security software for home users. But Symantec has also established itself as a leader in enterprise network security, as well.

As Symantec cuts its investment in the development of custom hardware security appliances, it might be logical to question whether Symantec is shifting its focus more to the consumer market. According to Symantec's Q1 fiscal year 2007 earnings report, the company's performance demonstrates a diversified business model, strong market leadership, and long-standing relationships with consumers and enterprises around the world.

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Not Your Father's E-learning

New Strategies & Technologies For Corporate Training

by David Garrett

• • •

E-LEARNING IS CHANGING. What used to be a dry exercise—amounting, more or less, to lots of on-screen reading—is now an engaging way to learn, and one that's becoming the preferred method of corporate training. In part it's because old-school training is costly. Instructors, lecture halls, and equipment add up, making training one of a firm's more pricey endeavors. (The average seminar can range from hundreds to even thousands of dollars per head, depending on where it's held, how long it takes, and whether you serve cheese and crackers or a three-course meal. Outsourced instructors bulk up the bill, too.)

In contrast, e-learning is cheap and convenient. An online course, seminar, or meeting can be used and reused hundreds

of times, meaning employees can learn when and where they want. And you don't have to break the bank on software: Even high-end tools can be purchased for less than \$1,000. In fact, open-source options such as Moodle (www.moodle.org) can even be hosted with ASPs to further trim costs. Further open-source options include Claroline (www.claroline.net) and Dokeos (www.dokeos.com).

Today's e-learning is powerful, too. Gone are the days of stagnant, warmed-over PowerPoint slides. They've been replaced by narrations, soundtracks, movies, real-time help, online meetings, simulations, and even multiuser games that drive business lessons home. And they're driving more lessons than ever before.

2,000 Topics

Just ask Carol Clark, co-founder of MindLeaders (www.mindleaders.com). Her firm offers more than 2,000 e-learning subjects, all written by qualified subject matter experts so you don't have to bother writing them yourself. Often, planning and writing the content, as opposed to planning and building the technology, is the hardest part for small to mid-sized enterprises.

MindLeaders clients simply take the courses they want, from HIPAA to Linux, including such diverse subjects as business ethics, Word, and project management. Until recently, says Clark, most e-learning

was "just technical topics, like heavy-duty Cisco, Internet security, and Oracle. But now you can take online courses that cover just about every topic."

Among the hottest options are health and on-the-job safety. They're gaining traction as employers seek new ways to cut their healthcare bills. Users can even get live support 24/7 or customize their curricula with MindLeaders' PLuS (Personalized Learning Service), in which "learning advisors" propose a custom-built learning plan quarterly.

Learning More, Learning Faster

But there's more to modern e-learning than simply its breadth. Cutting-edge providers have begun to push the envelope well past static, on-screen text displays into podcasts, real-time seminars, and global meetings.

They also draw from other disciplines to make e-learning stronger. Take Enspire, founded by an eclectic array that includes a Harvard Business School grad and a film producer (www.enspire.com). The result? Programs that blend corporate savvy with entertainment and a dollop of high-end disciplines such as learning theory.

Enspire is also a leader in e-learning simulations, or online immersion programs that involve teams, multiuser gaming, and dramatic, real-time role-playing. According to Jason Craft, Enspire's director of technology development, simulations draw on a theory of "constructivist learning" where end users are "solving problems and being placed inside a learning space where you have to assess

the environment and make meaningful decisions based on problems in that environment."

Rather than merely convey knowledge, simulations make learners think about—and even stress over—tough problems they're apt to find in their day-to-day jobs, whether it's a problem with a shipping fleet or a heart-valve transplant. (For more on simulations and gaming, see the "War Games, Anyone?" sidebar.)

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War Games, Anyone?

Today's e-learning is far from passive.

Multiuser games and simulations, in which users test their skills in online versions of real-life dramas, force users to solve problems in what Shon Bayer of Enspire calls a "pressure cooker."

Take Enspire's Waterloo Project, an off-the-shelf simulation (as opposed to a customized game) in which players design call centers and then field calls and tally up their profits, all while competing in teams. Most if not all the skills in a game such as this can be taught—or at the very least conveyed—in traditional e-learning models. But the drama, stress, and excitement of gaming involve users at deeper levels than passive learning systems and help them learn more quickly. Other simulation vendors include GoVenture, whose Simulation Designer lets you design your own simulations, and Innoken, which makes customized simulations for business clients.

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The Right Tools For The Job

What Is Your Data Center Desktop Search Strategy?

by Chris A. MacKinnon

THERE WAS A TIME WHEN desktop search was an amusing pastime. But today's desktop search has moved into the enterprise, and many desktop search tools are helping users become far more productive in their day-to-day operations. Gartner analyst Whit Andrews says if you don't have a corporate strategy for personal or desktop search, you need one.

Andrews says all enterprises, regardless of size, need a strategy of sorts. "People want desktop search," Andrews says. "The question is: Are you going to give it to them?" If so, where should data center and IT managers start when establishing a clear-cut policy on personal and desktop search? How and when should employees be allowed to download and use these tools? One thing is certain in the minds of most network administrators: If users are given free reign on their choice of tools, eventually they will download a number of programs and establish their own rules, potentially wreaking havoc on the network.

According to Andrews, the havoc ultimately refers to server index load. He says, "If you index a server that doesn't have the

bandwidth or processing power to handle the load, then that's a bad thing." He says employees will reasonably pick the product they perceive to be best for them, but it's the enterprise's responsibility to weigh manageability and efficiency against vision and aesthetics.

Desktop Search Emerging

Matthew Glotzbach, head of products for Google Enterprise, says desktop search technology has emerged on the scene as a "must-have" productivity gain for employees. He says, "Many users have commented that they don't know what they would do without it, now that they have the ability to instantly search across their desktop, their inbox, and their entire hard drive and network folders."

In light of this, Glotzbach says it is important for IT managers to understand what users are doing and what technology they have found effective. "The worst thing to do in determining your strategy," Glotzbach says, "is to force all users to stop using a tool they have come to rely on. Rather, survey the users and gain an understanding of what they are using and what features are important to them." He says it is important to understand what data

security policies exist in the organization and how those policies affect the features of desktop products. "In selecting which desktop search technology to support, look at which products allow for centralized policy administration."

Create A Policy

As for a clear-cut policy, Andrews says, first run a pilot and then pick one or two desktop search tools. Next, indicate those as being supported and then support it to the best of your ability. He notes, "Basically, you need to assume a two-year expiry date on your desktop search engine. In two years, you might want something different."

Dave Haucke, vice president of global marketing for ISYS Search Software, says policies concerning the installation and use of desktop search need not be any different from those that govern all personal, end-user applications. He says, "Of course, with the rise in popularity of desktop search, it's probably in a company's interest to remind its employees of these policies and stress that desktop search is indeed part of those rules."

Joe Longtin, product marketing manager at X1 Technologies, says a clear-cut policy requires two steps. Step one is to lock down the desktop, in regards to free tools downloaded off the Web. He says consumer-oriented free tools may expose the company to unforeseen risks. Step two is to test

Thinking Beyond The Single-User PC

According to IDC's "Hidden Costs of Information Work" report, the average information worker spends 9.5 hours each week searching for information—and often not finding it. Imagine the impact on the productivity of any size firm if its knowledge workers could reclaim 10% or more of their week.

Think of all the places where "personal search" really extends beyond the desktop into the enterprise: intranets and extranets, remote clients and mobile clients.

- Many companies use a Citrix terminal to enable global users; an integrated search function can eliminate switching back and forth between PC-based, network-based, and terminal-based apps.
- For firms that rely on SharePoint, having a common search interface encourages adoption of the portal, strengthening doc standards, workflow, and overall efficiency.
- Remote personnel could save time when they're using Outlook Web Access if they could also search network files.
- A single, unified view across all local and server-based content and data means conducting just one search, rather than three, four, or more.

SOURCE: X1 TECHNOLOGIES

and deploy a centrally managed standard. Longtin says, "IT needs to decide what knowledge repositories should be accessible, from storage to apps to databases to desktops. If it cannot be centrally administered, it's not an enterprise solution; it's a single-user tool that requires individual administration—see step one."

Go to Page 30

A Window into Wireless Networks

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Not Your Father's E-learning

Continued from Page 28

For Do-It-Yourselfers

Of course, you don't have to leave your office to build impressive e-learning projects because today's software is better

than ever before. For instance, Adobe Breeze lets SMEs (and not designers or code geeks) convert PowerPoint slides into high-end affairs with narration, testing, tracking, and reporting features (www.adobe.com).

Captivate, a second Adobe tool, captures all mouse and keyboard input to build easy-to-follow Flash simulations. Knowledge-Planet also has a well-designed line of e-learning tools, from simulation software to virtual classrooms (www.knowledgeplanet.com).

And the future could include even more gee-whiz options. MindLeaders' Clark,

who's been in the field since "green screens and mainframe computers," says tomorrow's bleeding edge may include features such as real-time translation, letting software designers (or project managers or salesmen) in Shanghai and Duluth train together, without the language problems that keep them apart today. That's a future worth learning about. □

The Right Tools For The Job

Continued from Page 29

Give A Dog Permission

So when should employees be permitted to download and use these tools? Longtin says, "Frankly, never. The primary use for business equipment is for business purposes. Unmanaged free desktop search tools can enable end users to index everything on their hard drive and every network drive they are mapped to." He says an effective solution restricts searches according to access permissions and allows for central configuration, customization, and deployment to end users. "This ensures a consistent interface, adherence to corporate data policies, and streamlined updates."

On the other hand, Google's Glotzbach says it is important that employees be able to use the tools that help make them productive. "There is nothing more frustrating than having a capability that helps make your job easier and then not being able to use it. The IT department needs to help facilitate productivity, not block it. However, it is also important to maintain security policies." Glotzbach says Google Desktop allows for centralized IT policy administration, thereby allowing employees to use the popular consumer search technology with security and centralized control.

Andrews says employees should only download and use tools sanctioned by IT.

Give A Dog A Strategy

Hauke says some offer centralized management, and others don't. "Some are enterprise ready, while many are simply designed as basic end-user applications. If an organization is truly looking to provide its end users with desktop search capabilities, it is

advised to look into a server-based desktop search solution, where management and distribution of seats is centralized and therefore much less of a drain on resources.”

Andrews says, "Everyone should definitely give Google Desktop a try. Microsoft's Enterprise desktop search is also worth reviewing and X1 is another. Others . . . include ISYS:desktop search software [www.isys-search.com], ZyLAB's Information Access Platform [www.zylab.com], and dtSearch's Desktop with Spider [www.dtsearch.com]."

Hauke says, "Due to the rise in popularity of desktop search, there needs to be a policy, and in the very least, a decent understanding of how desktop search works and what it can deliver in the way of benefits."

Glotzbach says, "Desktop search is an indispensable productivity tool, making users' lives easier and making their work more effective and efficient. IT departments can provide necessary guidance and ensure adherence to corporate policies while empowering users to have the tools they need to succeed." **P**

Desktop Search Tools

Tools	Searchable File Types	Operating Systems	Price	URL
dtSearch	Word processor, database, spreadsheet, presentation, ZIP, XML, PDF, HTML, Unicode files, email archives (including attachments), and more	Win95/98/Me/NT4/2000/XP/2003 Server	\$199	www.dtsearch.com
Google Enterprise Desktop	Lotus Notes, Microsoft Word/Excel/PowerPoint, Web pages, text, AOL IM, PDF files, multimedia files including audio, image, and video	WinXP and Win2000 Service Pack 3 and above	Free	desktop.google.com
ISYS:desktop	140 file types including Microsoft Office products, email, attachments, PDF, HTML, ZIP files, databases, and native format spreadsheets	Win2000 (SP4), WinXP (SP2), and Server 2003	Less than \$1,000	www.isys-search.com
X1 Enterprise Platform	ASCII Text 7 and 8-bit, DEC WPS Plus (DX) Versions through 4.0; various application files including Microsoft, Novell, Wordstar, Lotus, Adobe, Corel, and Kodak	Win2000/XP	Free	www.x1.com

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Security Options Abound

By Elizabeth Miller

IT IS COMING TO SECURITY, data center and IT managers not only have to create long-term strategies for protecting their mission-critical data, they also have to manage the types of choices available in the marketplace.

A company's security has become more vital for a company's health. It's become more vital to have security as a development from the experiences of companies over time. The way of making security available to enterprises is to provide products and integrated solutions that can also be continuing to figure out what needs to be done as a managed service. It's better for the enterprise to have security available to be done in both the short and long term.

It's Choose

In deciding among the different options, several key factors that gain the enterprise, including the level of resources



available at a company for tasks such as monitoring, identity management, and viruses the level of expertise required to administer the system. If a data center has the do-it-yourself mentality, it may be able to do certain parts of the system, dealing with a managed service.

On the other hand, a company should be realistic about the costs involved with managing security entirely in-house, especially in terms of expertise.

Unfortunately, experts say there's no one-size-fits-all solution for companies, even though some products and services come closer to being ideal, if certain tasks, like encryption, are ideal for certain

about the company's needs and how software can break confidence in a company's trust in complying with the notification requirements. "The problem is that the costs are so high that notification is not the primary concern that makes it a fairly large percentage of what comes to mind when people think about

In This Issue

COVER STORY
Security & Resiliency
When it comes to security, IT managers need to be aware of the threats and the processes they're using to protect their data. Here are the choices in terms of how to protect your data and the choices you can make.

Security Options Abound
Elizabeth Miller, Data Center Manager, First State Security Services, on the choices available.

TECH & TREND
Breaches & I
How to prevent data breaches and the role IT plays in addressing the problem.

Storage Content Delivery / 28
In response to changing business characteristics and the need to reduce latency, companies are already pivoting to using content delivery networks.

Disaster Recovery For Mobile Data
A number of vendors are working to deliver disaster recovery to mobile devices.

Industry Data Center Center / 30
Incomes are down, money is up, and the industry is looking for ways to increase efficiency while maintaining revenue before purchases.

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WHAT'S HAPPENING

Addressing The Trouble With Training

Company Strives To Meet The Real Training Needs Of IT Managers

by John Brandon

• • •

TRAINING IS IN TROUBLE. At least, that seems to be the consensus with IT managers at many companies both large and small. Computer-based training is ineffective, classroom instruction is just too expensive, and hybrid options—where an employee spends some time in a noninteractive session and debriefs in a condensed classroom—are just Band-Aids on a gaping wound. Yet, while training budgets shrink at some companies, the need for deeper knowledge and more technical insight has grown. Government regulations are increasingly complex, and many college-educated and master's degree-level employees find that their knowledge fades quickly as technology advances and evolves.

The Training Dilemma

For many managers, employee training is like an unsolvable math problem. There are too many companies that provide training, too much information overload, and too many employees who lack the ambition to learn IT themselves. Sending employees to training is often a roll of the dice: They may come back with more knowledge, or they may take frequent fruit-bar breaks to bide their time until the lecture ends. One company that certainly understands the vagaries of IT training is CertTest (www.certtest.com), an 11-employee firm that emphasizes quality over quantity.

"It really comes down to the fact that we are more interested in people learning how to perform their jobs and not just pick up all the latest technical definitions," says David Cannon, who founded the company in 2002. "The training market is very clouded, and managers have found that IT training is sometimes a low-yield investment."

The CertTest Difference

CertTest combats the perceptions about training through a multifaceted approach. Cannon has made a point to hire what he calls "experienced practitioners" who have worked in IT for at least 15 years (and often more than 20 years). He then trains them to be trainers, rather than hiring professional trainers and teaching them IT. That's an important distinction because too many hired guns just pass along truncated, inaccurate technical information.

CertTest classes are often highly engaging and interactive, drawing IT employees out of their "comfort zone" and encouraging them to participate and understand the lessons. Most importantly, CertTest has a management focus that seeks to train employees beyond a maintenance role and into a deeper level of IT mastery over government compliance and security issues.

"High school and college educations are focused on the maintenance role of IT," says Cannon. "In some ways, IT has become the plumbers and auto mechanics who tend to keep their heads down away from the business side. We want our training courses to get employees beyond the basics, beyond what the other 400,000 IT employees with a master's already know in the United States. We want to offer true enlightened training. There are just too many IT employees who get Cisco-certified and enter the workforce at \$11 per hour, so our goal is to train technicians to go farther, to become future leaders in the company."

"IT has become a commodity," Cannon says, "and that explains why it has become so easy to outsource to foreign countries. We're finding that many customers don't like outsourcing, and the cultural barriers

are a problem for some companies. Outsourcing is not as cheap as it once was. IT training helps retool an existing workforce for new challenges."

CertTest operates training operations in Las Vegas, Dallas, Orlando, and a soon-to-be-opened Washington, D.C., site. Courses typically cost about \$2,000, which is less expensive than some IT courses, such as those through Gartner, yet compare in quality.

Trends In Training

One trend that Cannon notes in the training field is that managers are finally becoming more savvy about measurable return on IT training. He suggests that administrators request a training company



scorecard, which most companies will provide if they have positive results to share. He says another trend is that some training companies are plagiarizing the course content from companies such as CertTest, which publishes its own study guides and coursework materials.

He says the most common roadblock to successful training is employee self-motivation. He describes a scenario where five people enter a new training course. One will likely attend training as an "exit benefit," knowing they will be leaving the company soon. Two more will attend training without any plan to implement the ideas: They will just keep using current practices until they retire. And two more will be motivated to learn. He says that CertTest is geared for those more attentive, self-motivated employees.

Interestingly, he notes that another trend in the field is to use training as a performance benchmark. While some companies tend to view seasoned employees as "tenured," even though they may have an attitude problem or poor performance, he suggests that training can help companies meet stringent equal opportunity requirements. He says that IT training is all about meeting a performance benchmark, giving managers another best practice tool.

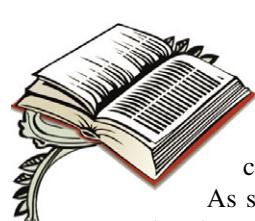
"An employee has to meet a performance benchmark," he says. "If they don't, then train them so they do. If they go to training and still fail to meet the baseline requirement, you can fire them. If an employee does not meet a requirement, you don't have to hire them. It's easier to say 'this job is only for people who meet the requirement after training' and not hire untrained applicants."

Cannon also explained that IT training is now more cost-effective. He says, in the past, training was a risky proposition, especially when you start adding up the cost for training, paying the employee's salary, back-filling with another technician while the employee is

out, and other intangibles such as travel expenses. A \$2,000 training course can cost as much as \$10,000 in total. Yet, with more effective training, there's a greater return on that investment because employees retain the knowledge, apply it in their jobs, and gravitate toward management positions. Classroom-based training has fewer distractions than computer-based training, and Cannon says CertTest makes sure it engages students, so they don't think about checking email or feel guilty about missed support calls.

It's true that compliance issues are causing concerns among IT staff who wonder how they could ever stay current. Cannon says they know they have the tough job of reading through reams of regulations, culling the important facts, and educating IT. CertTest helps take some of the consternation out of IT training. □

TWO TERMS



I SAS (Serial Attached SCSI)

What it is: SAS is a data transfer (bus) technology used for establishing communications between storage devices.

As such, SAS is a point-to-point serial communication protocol, so it is different from the parallel SCSI protocol it is designed to replace. Other features include compatibility with SATA and SCSI, full duplex data transmission, and the capability to hot-plug devices.

Why you should care: SAS is faster than SCSI, is compatible with SATA devices, uses SCSI commands, and can simultaneously connect multiple devices together. SAS devices can also support dual data paths, which help create device redundancy. SAS devices now have data transfer speeds of 3Gbps, but speeds will increase up to 10Gbps. The technology also makes use of longer cables.

Related products and manufacturers: Seagate (Cheetah and Savvio hard disks), Adaptec (SAS RAID and Host Controllers and storage systems), Maxtor (Atlas hard disk 15K/10K series), and Rancho (SAS expanders and SAS accessories).

I HSM (hierarchical storage management)

What it is: HSM is designed to automatically and seamlessly move data around between slow and fast storage media. For example, data stored in slower (but cheaper) devices such as tape drives and CD/DVD media can be automatically moved to faster (more expensive) disk drives. In a sense, HSM uses fast disk drives as temporary storage of only the data that is being used at the time. In that sense, HSM is a caching technology that must analyze the manner in which data is used so it can effectively copy the most used data to faster storage.

Why you should care: Why store all data in the most high-performance but most expensive disks when it can be easily stored in cheaper media and only retrieved when needed? That is the idea behind HSM: Automatically and seamlessly move data to faster, higher performance storage only when it is in use and store it the rest of the time in cheaper media. This is a similar paradigm to desktop computing: Data is stored long-term in slower hard drives but when it is being used, it is copied to much faster memory.

Related products and manufacturers: IBM (Tivoli Storage Manager), EMC (Centera Mainframe HSM Migrator), HP (OpenView OmniStorage), and CommVault (QiNetix).

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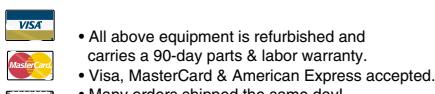
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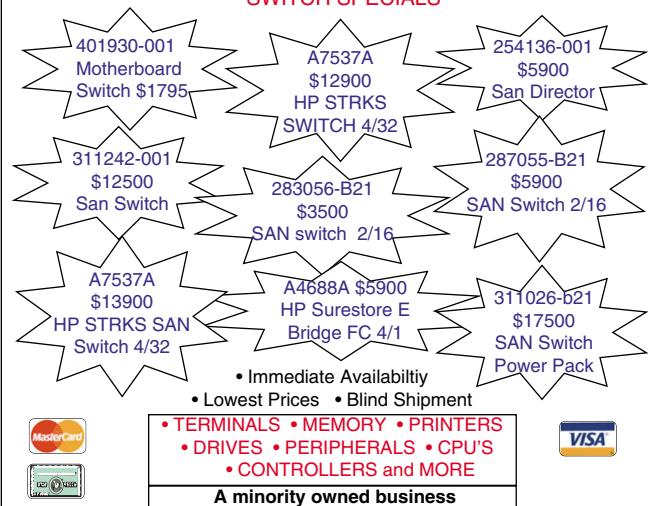
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